

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	:	Yanagi et al.
Appl. No.	:	09/662,454
Filed	:	September 14, 2000
For	:	CLONED GENOMES OF INFECTIOUS HEPATITIS C VIRUSES AND USES THEREOF
Examiner	:	Marvich, Maria
Group Art Unit	:	1633

## DECLARATION UNDER 37 CFR 1.132 OF ROBERT H. PURCELL, M.D.

I, Robert H. Purcell, M.D., do hereby declare:

1. I am a named inventor of the above-identified application. A true and correct copy of my Curriculum Vitae is attached as Exhibit 1. I understand the U.S. Patent and Trademark Office (USPTO) rejected Claims 64-66 as failing to meet the enablement requirement. I understand that the test for enablement is whether one skilled in the art could make or use the subject matter defined by the claims without undue experimentation. I understand that the "Wands" factors (nature of the invention, scope of the claims, existence of working examples and guidance provided by the inventor, state of the art, and predictability in the art) are to be considered in determining whether any necessary experimentation is undue. Here, the specification is enabling with respect to the claimed subject matter. Thus, here, considering all the factors related to the enablement issue, it must be concluded that it would *not* require undue experimentation to make and use the subject matter defined in the claims.

2. Nature of the invention: I agree with the USPTO that Claim 64 is directed toward a method for inducing an immune response in an animal by administration of a composition comprising a nucleic acid sequence encoding SEQ ID NO:3, a chimeric molecule comprising replacing sequences encoding structural proteins or HCV proteins of SEQ ID NO:3 with HCV sequences from HCV of another strain from a different genotype or subtype, which, upon expression in transfected cells results in production of virus.

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3. Scope of the claims: I agree with the USPTO that the composition is provided to an animal that is not infected with HCV (claim 65) or is infected with HCV (claim 66). The methods are practiced for use in preventing and treating hepatitis C infection by hepatitis C virus (HCV). The infectious clones are also important for developing antibodies that are useful for diagnostic purposes.

4. Existence of working examples and guidance provided by the inventor: I agree with the USPTO. Applicants have isolated one of the first fully infectious clones of HCV, strain H77, which is genotype 1a (SEQ ID NO: 1 and 2) and the 1<sup>st</sup> fully infectious clone of strain HC-J4, which is genotype 1b (SEQ ID NO: 3 and 4). Previously, isolates were non-infectious in cell culture (e.g., Yoo et al., J Virol 69: 32, 1995). Additionally, Applicants have generated a chimera of clones 1a and 1b (SEQ ID NO: 5 and 6). In Figure 18, the infectivity of the genotype 1a clone and production of anti-HCV antibodies by chimpanzees infected with HCV was demonstrated. Hence, genetically stable clones of HCV were constructed from both 1a and 1b genotypes, and the genotype 1a clone established as inducing the production of antibodies. Administration of these clones is then proposed to be useful prophylactically and therapeutically, which uses embrace methods of immunization against HCV to prevent HCV infection as well as methods of treatment (e.g., WO 99/04008 at p. 25). Induction of antibodies is also said to be useful for diagnostic purposes (e.g., WO 99/04008 at p. 29). Applicants have also provided post-filing date art demonstrating the production of anti-HCV antibodies from the genotype 1b clone (Yanagi et al., Virology 244: 161, 1998 at Figure 9). It is undisputed that the claims, which require the induction of an immune response, are met by the demonstration of the production of antibodies.

5. State of the art: I agree with the USPTO that HCV is a human pathogen comprising six major genotypes and a number of subtypes and variants. I agree, referring to Forns et al., J Hepatol 37: 684 (2002), cited by the USPTO, that chronic infection is responsible for liver cirrhosis and hepatocellular carcinoma and represents the most frequent indication for liver transplantation in developed countries. I am the last named author of the post-filing date art of Forns et al. 2002. While, in Forns et al. 2002, we described the *challenge* of developing a vaccine against hepatitis C virus, I disagree with the USPTO that Forns et al. 2002 stands for the proposition that vaccination is not "viable" and there have been "no promising or potential developments to date". I agree with the quotation by the USPTO of the possibility that immunity against HCV is strain- or isolate-specific (Forns et al. 2002 at Sec. 2.1) and that genetic

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heterogeneity of the virus contributes to escape from preexisting immunity (Forns et al. 2002 at Sec. 2.2). Nevertheless, this does not antagonize vaccination against HCV. To the contrary, we reported that the existence of neutralizing antibodies has been shown in several experiments performed in chimpanzees. Forns et al. 2002 at Sec. 2.3. The chimpanzee model represents a valid animal model that can be used to test the efficacy of HCV vaccine candidates. Forns et al. 2002 at Sec. 2.4 (p. 687, col. 2, ¶ 2). Investigators demonstrated that serum from a patient chronically infected with HCV was able to neutralize HCV. Forns et al. 2002 at Sec. 2.3. Other investigators reported that antibodies to HCV in patient plasma could neutralize HCV. Indeed, in the experiment reported in Forns et al. 2002 at Sec. 2.1, above, antibodies in hyperimmune serum against the hypervariable region 1 of the envelope 2 protein prevented hepatitis C infection when tested in the chimpanzee model. While the role of neutralizing antibodies to obtain complete immunity is still unknown, we reported the opposite of that represented by the USPTO that a vaccine represents a *reasonable* goal (Forns et al. 2002 at Sec. 4). It is undisputed that the claims, which are met by the demonstration of the production of antibodies, do not require complete neutralization or full immunity, and I expect the production of antibodies to contribute to neutralization and immunity.

6. While I agree that a colleague (Nelson Fausto, American Journal of Pathology, August 1997, Vol. 151, No.2, page 361, first column) said "Despite great progress in understanding the natural history of the disease, fundamental aspects of the pathogenesis of hepatitis C remain unknown.", this Editor's Note was describing a controversial tissue culture system. As we reported in Forns et al. 2002 at Sec. 2.4, lack of reproducible cell-culture systems and small animal models make the development of an HCV vaccine difficult but both systems are now available. Nevertheless, as we elucidated in Forns et al. 2002 at Sec. 3, approaches are feasible for the development of an HCV vaccine. Although we wrote "The classical approaches to vaccine development, live attenuated or whole inactivated virus, are not feasible for HCV because there is no cell culture system to produce viral particles.", I now report that such a cell culture system has been published as has a small animal model (see Lindenbach et al., PNAS 103:3805-3809, 2006). Thus, the classical approaches to vaccine development, live attenuated or whole inactivated virus, are feasible for HCV.

7. Predictability in the art: While I agree with the citation by the USPTO to Rice, CM, New York Academy of Sciences, Third Annual PHRI Symposium, "Hepatitis C: Progress

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toward New Therapies,” 2006, I do not agree that it stands for the proposition that “even partial protection has not been attainable”; see, e.g., Forns et al. 2002 at Sec. 2.1, above. Rather, I agree with Dr. Rice on page 1 that recent developments in antiviral and vaccine research offer hope. I also agree with Dr. Rice on page 3 that neutralizing antibodies may not be essential for resolution of acute infections, but they still may be a very good component of a prophylactic vaccine. Prophylactics would be important for both protective and therapeutic immunity. I agree with Dr. Rice on page 2 that no magic bullet antiviral or vaccine will eradicate hepatitis C, but that a spectrum of approaches will confound the virus. It is undisputed that the claims are met by the demonstration of the production of antibodies and do not disclaim a spectrum of approaches that will eradicate hepatitis C virus.

8. Amount of Experimentation Required: I understand that the “how to use” prong of the enablement requirement incorporates the utility requirement. The utility of Claims 64-66 to generate antibodies is unquestioned! The disclosure is thus fully enabling with respect to antibodies. Forns et al. 2002 and Rice CM 2006 provide evidence that the antibodies themselves are expected to be useful in preventing and treating hepatitis C infection by hepatitis C virus (HCV) because the antibodies contribute to neutralization and immunity.

9. In view of these factors, it must be concluded that the specification enables those skilled in the art to make and use the subject matter defined in Claims 64-66.

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I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful, false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful, false statements may jeopardize the validity of the application or patent issuing therefrom.

Respectfully submitted,

Dated: 4/19/06

By: Robert H. Purcell  
Robert H. Purcell, M.D.

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# EXHIBIT 1

## CURRICULUM VITAE

**Name:** Robert H. Purcell, M.D.

**Date and Place of Birth:** December 19, 1935; Keokuk, Iowa

**Social Security Number:** 442-36-2449

**Citizenship:** United States

**Address:** Office: HVS/LID/NIAID/NIH  
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50 South Drive MSC 8009  
Bethesda, MD 20892-8009  
(301) 496-5090/496-6227

### Education:

1955	A.S. (Chemistry), Eastern Oklahoma A & M Jr. College
1957	B.A. (Chemistry), Oklahoma State University, Stillwater
1960	M.S. (Biochemistry), Baylor University, Waco, Texas
1962	M.D., Duke University, Durham, North Carolina

### Brief Chronology of Employment:

1959 - 1960	Student Fellow with Dr. A. Clark Griffin, Baylor University. Studied physico-chemical properties of polyoma virus.
1960 - 1962	Student fellow with Dr. Joseph Beard, Duke University. Collaborated in delineating the amino acid composition and nucleotide sequence of avian myeloblastosis virus
1962-1963	Internship, Pediatrics, Duke Hospital, Durham, North Carolina.
1963 - 1965	Officer, Epidemic Intelligence Service, Communicable Disease Center, Atlanta, Georgia. Assigned to Vaccine Development Branch of NIAID to participate in evaluation of live enteric type 4 adenovirus vaccine.
1965 - 1969	Senior Surgeon, USPHS, Laboratory of Infectious Diseases, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, Maryland.

1969 - 1972	Medical Officer, (CS), Laboratory of Infectious Diseases, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, Maryland.
1972 - 1974	Medical Director, USPHS, Laboratory of Infectious Diseases, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, Maryland.
1974 - Present	Head, Hepatitis Viruses Section, Laboratory of Infectious Diseases, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, Maryland.
1988 - Present	Adjunct Professor, Department of Microbiology, Georgetown University Medical Center, Rockville, Maryland.
1989 - Present	Adjunct Professor, Department of Immunology and Infectious Diseases, Johns Hopkins University School of Public Health, Baltimore, Maryland.
1990 - Present	Collaborative Scientist (adjunct Professor), Division of Pathobiology and Immunobiology, Yerkes Regional Research Center, Emory University, Atlanta, Georgia.
2001 - Present	Co-Chief, Laboratory of Infectious Diseases, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, Maryland.

**Societies:**

American Epidemiological Society  
American Society for Microbiology  
American Society for Virology  
American Association for Advancement of Science  
Society for Epidemiologic Research  
Infectious Diseases Society of America  
Washington Academy of Sciences  
American Society for Clinical Investigation  
New York Academy of Sciences  
Association of American Physicians  
American College of Epidemiology  
American Association for the Study of Liver Diseases  
International Association for the Study and Prevention of Virus Associated Cancers  
International Association of Biological Standardization  
International Association for the Study of Liver Diseases  
Society for Experimental Biology and Medicine  
International AIDS Society  
National Academy of Sciences  
American Academy of Microbiology



Molecular Medicine Society  
American Society of Tropical Medicine and Hygiene

**Honors, Awards, and Medals Received:**

Elected Fellow, Washington Academy of Sciences, 1972  
Recipient, USPHS Superior Service Award, July, 1972.  
Recipient, USPHS Meritorious Service Medal May, 1974.  
Recipient of Gorgas Medal, Nov., 1977.  
Recipient, Distinguished Service Medal, April, 1978.  
Recipient, Distinguished Alumni Award, Duke University School of Medicine, Durham, North Carolina, November, 1978.  
Recipient, Eppinger Prize, 5th International FALK Symposium on Virus and Liver, Basel, Switzerland, September 29 - October 9, 1979.  
Recipient, Squibb Award, Infectious Diseases Society of America, September 1980.  
Recipient, Medal of the City of Turin, Italy, June 10, 1983.  
Recipient, Gold Medal Award, Canadian Liver Foundation, September 11, 1984.  
Recipient, Distinguished Scientist Award, Society for Experimental Biology and Medicine, Washington, DC Chapter, February 19, 1986.  
Elected Member National Academy of Sciences, May 1988.  
Biographee, Who's Who in America, 1991.  
Elected Fellow American Academy of Microbiology, 1992.  
Recipient, Eastern Oklahoma State College Alumni Hall of Fame Award, 1996.  
Co-recipient, King Faisal International Prize in Medicine, 1998.  
Recipient, 1999 Research Science Award of the Hepatitis Foundation International, Washington, D.C., March 28, 1999.  
Elected Fellow of the American Association for the Advancement of Science, 1999.  
Elected Fellow of the Molecular Medicine Society, 2000.  
Recipient, Distinguished Achievement Award, 10th International Symposium on Viral Hepatitis and Liver Disease, Atlanta, GA, April 9-13, 2000.  
Recipient, Distinguished Achievement Award, American Society for the Study of Liver Diseases, 2000.

**Past/Present Member of Editorial Board and/or Reviewer for the Following Journals:**

*American Journal of Epidemiology*  
*Gastroenterology*  
*Hepatology*  
*Infection and Immunity*  
*Journal of Clinical Microbiology*  
*Journal of Clinical Investigation*  
*Journal of Infectious Diseases*  
*Journal of Medical Virology*  
*Journal of the National Cancer Institute*  
*Journal of Virology*  
*Lancet*  
*Nature*  
*Proceedings of the National Academy of Sciences*

*Science*

**Past or Present Member of the Following Committees:**

- Clinical Research Committee
- Ad hoc Study Group, R&D Command, U.S. Army
- NIH Committee on Utilization of Hepatitis Vaccine.
- WHO Expert Advisory Panel on Virus Diseases.
- Promotion and Tenure Committee, National Institute of Allergy and Infectious Diseases.
- Oversight Committee, Institute of Laboratory Animal Research, National Academy of Sciences.
- Public Health Service Animal Models Committee.
- Occupational Health and Safety Committee, National Institutes of Health.
- FCCSET Working Group on HIV Vaccine Development and International Field Trials, Committee on Life Sciences and Health.
- Flaviviridae Study Group, International Committee on the Taxonomy of Viruses.
- Central Tenure Committee, National Institutes of Health
- NIH Safety Committee
- NIAID Promotion and Tenure Staff Scientist Subcommittee

**U.S. Patents:**

1. Modification Of Hepatitis B Virus Infection In Chronic Carriers Of HBsAG  
Patent #: 4,140,761 (1979)  
Inventors: John Gerin, Hilton Levy, Thomas Merigan, Robert H. Purcell, and William Robinson
2. Inactivation Of a Lipid Virus  
Patent #: 4,511,556 (1985)  
Inventors: Robert H. Purcell, and Stephen M. Feinstone
3. Isolation Of Hepatitis A Virus Strain HM-175  
Patent #: 4,532,215 (July 30, 1985)  
Inventors: Richard J. Daemer, Stephen M. Feinstone, Ian D. Gust, and Robert H. Purcell
4. Inactivation Of Viruses Containing Essential Lipids  
Patent #: 4,581,231 (1986)  
Inventors: Robert H. Purcell, S.M. Feinstone
5. Utilizing A Halohydrocarbon Containing Dissolved Water To Inactivate A Lipid Virus  
Patent #: 4,615,886 (1986)  
Inventors: R.H. Purcell, S.M. Feinstone
6. Hepatitis A Virus Purified And Triply Cloned  
Patent #: 4,620,978 (Nov. 4, 1986)  
Inventors: Richard Daemer, Stephen Feinstone, Ian Gust, Robert Purcell

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7. Isolation Of Hepatitis A Virus Strain HM-175  
Patent # 4,636,469 (Jan. 13, 1987)  
Inventors: Richard Daemer, Stephen Feinstone, Ian Gust, Robert Purcell
8. Vaccine Against Hepatitis A Virus  
Patent #: 4,894,228 (1990)  
Inventors: Robert H. Purcell, John R. Ticehurst, Jeffrey I. Cohen, Suzanne U. Emerson, Stephen M. Feinstone, Richard J. Daemer, and Ian D. Gust
9. A Vaccine Against Hepatitis A  
Patent #: 5,476,658 (1995)  
Inventors: Sergei A. Tsarev, Suzanne U. Emerson, Michael S. Balayan, and Robert H. Purcell
10. Hepatitis A Vaccine  
Patent #: 5,478,746 (Dec. 26, 1995)  
Inventors: Jeffery I. Cohen, Robert H. Purcell, Stephen M. Feinstone, and John R. Ticehurst
11. Nucleotide And Deduced Amino Acid Sequences Of The Envelope 1 Gene Of 51 Isolates Of Hepatitis C Virus And The Use Of Reagents Derived From These Sequences In Diagnostic Methods And Vaccines  
Patent #: 5,514,539 (May 7, 1996)  
Inventors: Jens Bukh, Roger H. Miller, Robert H. Purcell
12. Production of Complementary DNA Representing Hepatitis A Viral Sequences by Recombinant DNA Methods and Uses Therefor  
Patent #: 5,516,630 (1996)  
Inventors: John R. Ticehurst, David Baltimore, Stephen Feinstone, Robert Purcell, Vincent R. Racaniello, Bahige Baroudy, Suzanne U. Emerson
13. African Green Monkey Kidney Cell Line Useful For Maintaining Viruses And For Preparation Of Viral Vaccines  
Patent #: 5,646,033 (July 8, 1997)  
Inventors: L. Potash, R.M. Chanock, R. H. Purcell, A.Z. Kapikian
14. Hepatitis A Vaccine  
Patent #: 5,837,260 (Nov. 17, 1998)  
Inventors: Jeffery I. Cohen, Robert H. Purcell, Stephen M. Feinstone, and John R. Ticehurst
15. Production Of Complementary DNA Representing Hepatitis A Viral Sequences By Recombinant DNA Methods And Uses Therefor  
Patent #: 5,849,562 (Dec. 15, 1998)  
Inventors: R.H. Purcell, S.U. Emerson
16. Method Of Producing A Virus Vaccine From An African Green Monkey Kidney Cell Line  
Patent #: 5,911,998 (June 15, 1999)  
Inventors: L. Potash, R.M. Chanock, R.H. Purcell, A.Z. Kapikian

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17. Nucleotide And Deduced Amino Acid Sequences Of The Envelope 1 Gene Of 51 Isolates Of Hepatitis C Virus And The Use Of Reagents Derived From These Sequences In Diagnostic Methods And Vaccines  
Patent #: 5,871,962 (Feb. 16, 1999)  
Inventors: Jens Bukh, Roger H. Miller, Robert H. Purcell
18. Hepatitis C Virus (HCV) Core Gene Nucleotide Sequences And Related Methods Of Detecting Major And Minor Genotypes of HCV Isolates  
Patent #: 5,882,852 (Mar. 16, 1999)  
Inventors: Jens Bukh, Roger H. Miller, Robert H. Purcell
19. Method for Producing a Virus From an African Green Monkey Kidney Cell Line  
Patent #: 6,025,182 (Feb. 15, 2000)  
Inventors: L. Potash, R.M. Chanock, R.H. Purcell, A.Z. Kapikian
20. Recombinant Proteins of a Pakistani Strain of Hepatitis E And Their Use In Diagnostic Methods And Viruses  
Patent #: 6,054,567 (Apr. 25, 2000)  
Inventors: Suzanne U. Emerson, Robert H. Purcell, Sergei A Tsarev, R.A. Robinson
21. Nucleotide And Deduced Amino Acid Sequences Of Hypervariable Region 1 Of The Envelope 2 Gene Of Isolates Of Hepatitis C Virus And The Use Of Reagents Derived From These Hypervariable Sequences In Diagnostic Methods And Vaccines  
Patent #: 6,110,465 (Aug. 29, 2000)  
Inventors: Jens Bukh, Roger H. Miller, Robert H. Purcell
22. Method for Producing an Adapted Virus Population From an African Green Monkey Kidney Cell Line  
Patent #: 6,117,667 (Sept. 12, 2000)  
Inventors: L. Potash, R.M. Chanock, R.H. Purcell, A.Z. Kapikian
23. Human/Simian Chimeric Hepatitis A Virus Vaccine  
Patent #: 6,146,643 (Nov. 14, 2000)  
Inventors: Sergei A. Tsarev, Suzanne U. Emerson, Robert H. Purcell
23. Cloned Genomes of Infectious Hepatitis C Viruses And Uses Thereof  
Patent #: 6,153,421 (Nov. 28, 2000)  
Inventors: M. Yanagi, J. Bukh, S.U. Emerson, R.H. Purcell
24. Methods For Detecting Antibodies to HAV 3C Proteinase  
Patent #: 6,156,499 (Dec. 5, 2000)  
Inventors: Deneen Stewart, Tina S. Morris, Robert H. Purcell, Suzanne U. Emerson
25. Attenuated Hepatitis A Virus Vaccine Which Grows in MRC-5 Cells  
Patent #: 6,180,110 B1 (Jan. 30, 2001)  
Inventors: Ann W. Funkhouser, Suzanne U. Emerson, Robert H. Purcell, Eric D'Hondt

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26. Recombinant Proteins of a Pakistani Strain of Hepatitis E and Their Use in Diagnostic Methods and Vaccines  
Patent No. 6,207,416 (Mar. 27, 2001)  
Inventors: Sergei A. Tsarev, Suzanne U. Emerson, Robert H. Purcell
27. Simian-Human HAV Having A Chimeric 2C Protein  
Patent No. 6,280,734 (Aug. 28, 2001)  
Inventors: G. Raychaudhuri, S.U. Emerson, R.H.Purcell
28. Recombinant Proteins of a Pakistani Strain of Hepatitis E and Their Use in Diagnostic Methods and Vaccines  
Patent No. 6,287,759 (Sept. 11, 2001)  
Inventors: Sergei A. Tsarev, Suzanne U. Emerson, Robert H. Purcell
29. Vaccine Against Hepatitis A Virus  
Patent #: RE37,381 (Sept. 18, 2001) of 4,894,228 (1990)  
Inventors: Robert H. Purcell, John R. Ticehurst, Jeffrey I. Cohen, Suzanne U. Emerson, Stephen M. Feinstone, Richard J. Daemer, and Ian D. Gust
30. Nucleotide And Deduced Amino Acid Sequences Of The Envelope 1 Gene Of 51 Isolates Of Hepatitis C Virus And The Use Of Reagents Derived From These Sequences In Diagnostic Methods And Vaccines  
Patent #: 6,572,864 (June 3, 2003)  
Inventors: Jens Bukh, Roger H. Miller, Robert H. Purcell
31. Vaccine Against Hepatitis A Virus  
Patent #: RE37,381 (Sept. 18, 2001) of 4,894,228 (1990)  
Inventors: Robert H. Purcell, John R. Ticehurst, Jeffrey I. Cohen, Suzanne U. Emerson, Stephen M. Feinstone, Richard J. Daemer, and Ian D. Gust
32. Hepatitis A Virus Vaccines  
Patent #: 6,423,318 b1 (July 23, 2002)  
Inventors: Ann W. Funkhouser, Suzanne U. Emerson, Robert H. Purcell, Eric D'Hondt
33. A Swine Hepatitis E Virus and Uses Thereof  
Patent #: 6,432,408 B1 (Aug. 13, 2002)  
Inventors: X-J Meng, S.U. Emerson, R.H. Purcell
34. Recombinant Proteins of a Pakistani Strain of Hepatitis E and Their Use in Diagnostic Methods and Vaccines  
Patent #: US 6,458,562 B1 (Oct. 1, 2002)  
Inventors: S.U. Emerson, R.H. Purcell, S.A. Tsarev, R.A. Robinson
35. Nucleotide And Deduced Amino Acid Sequences Of The Envelope 1 Gene Of 51 Isolates Of Hepatitis C Virus And The Use Of Reagents Derived From These Sequences In Diagnostic Methods And Vaccines  
Patent #: 6,572,864 (June 3, 2003)  
Inventors: J. Bukh, R.H. Miller, R.H. Purcell

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36. Hepatitis A Virus Vaccines  
Patent #: 6,680,060 B2 (Jan. 20, 2004)  
Inventors: A.W. Funkhouser, S.U. Emerson, R.H. Purcell, E. D'Hondt
37. Recombinant Proteins of a Pakistani Strain of Hepatitis E and Their Use In Diagnostic Methods and Vaccines  
Patent #: 6,696,242 (Feb. 24, 2004)  
Inventors: S.A. Tsarev, S.U. Emerson, R.H. Purcell
38. Recombinant Proteins of a Pakistani Strain of Hepatitis E and Their Use In Diagnostic Methods and Vaccines  
Patent #: USP 6,706,873 (Mar. 16, 2004)  
Inventors: S.A. Tsarev, S.U. Emerson, R.H. Purcell

**U.S. Patent Applications and Continuations-in-part: >75**

**Special Scientific Recognition:**

Invited Participant, Contributor, Symposium, "What's New in Infectious Diseases," Jefferson Medical College, 1966. Proceedings published in Medical Clinics of North America.  
Temporary Advisor to World Health Organization on Mycoplasma nomenclature and classification, Geneva, October, 1967.  
Invited Speaker, Third Nuffield Conference of Rheumatism, Ditchley Park, Oxfordshire, England, April 11-12, 1967. Paper presented: "Mycoplasmas and Rheumatoid Arthritis" by RH Purcell, JL Decker, and RM Chanock.  
Invited Participant, WHO mycoplasma Meeting, Geneva, October, 1967.  
Invited Participant, Symposium on Pediatric Respiratory Diseases for Twelfth International Congress of Pediatrics, Mexico City, December 1-7, 1968. Presented paper on the role of mycoplasmas in human disease.  
Invited Speaker, Third International Symposium on Medical and Applied Virology, Fort Lauderdale, Florida, December 14-17, 1969.

1970

Invited Participant, American Academy of Pediatrics Spring Meeting, Washington, DC, April 13-15, 1970.  
Invited Speaker, WHO Mycoplasma Meeting, Geneva, May 7, 1970.  
Invited Speaker, WHO Viral Hepatitis Meeting, Geneva, May 4-6, 1970.  
Invited Speaker, Colloquium of the International Society of Blood Transfusion, Munich, Germany, August, 1970.

1971

Invited Participant, International Seminar on Viral Hepatitis, International Children's Centre, Paris, June 14-16, 1971.

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Invited Participant, Meetings of the Surgeon General's Subcommittee on Liver Disease, at Presbyterian St. Luke's Hospital, Chicago, Illinois, October, 1969 and November, 1971.  
Presented papers at both on Australia Antigen Studies.

Invited Participant, Panel Discussion on Australia-Antigen-Positive Hepatitis at Meeting of the American Association of the Study of Liver Disease November 3-4, 1971, Chicago, Illinois.

## 1972

Invited Participant, Ninth International Gastroenterology Congress, Paris, July, 1972.

Invited Participant, Symposium on Infectious Diseases, University of Vermont, October 20, 1972.

Invited Speaker, U.S. - Japan Viral Disease Working Conference, Sapporo, Japan, September 18-20, 1972.

Invited Participant, WHO Scientific Group on Viral Hepatitis. Geneva, September 25-30, 1972.

Invited Participant, American Association for the Study of Liver Disease, Chicago, November, 1972.

## 1973

Invited Participant, Ecological Investigations Program Seminar, Phoenix, Arizona, January 15-16, 1973.

Invited Participant, OPS Management Conference with the Secretary NIH, October 27, 1972.

Invited Speaker, U.S. Japan Cooperative Medical Sciences Program, Third Revised Program for Workshop on Recent Advances in Epidemiology and Pathogenesis of Viral Diseases, NIH, July 23-27, 1973.

## 1974

Invited Speaker, Gustav Stern Symposium, "Perspectives in Virology IX," New York, NY, February 4 & 5, 1974.

Invited Speaker, ILN UCLA Squaw Valley Symposia, Squaw Valley, California, March 24-29, 1974.

Invited Speaker, 5th World Congress of Gastroenterology, Hepatitis Symposium, Mexico City, Mexico, October 13-19, 1974.

Invited Speaker, Hepatitis B Symposium, Melbourne, Australia, May 2-3, 1974.

Invited Speaker, Sixth Annual Red Cross Scientific Symposium, May 8, 1974.

Invited Speaker, American Society for Microbiology meeting, May 6-10, 1974, Chicago, Illinois.

Invited Speaker, Faculty Seminar at the University of Texas Health Science Center, Dallas, Texas, November 6, 1974.

Invited Speaker, Infectious Diseases Society of America, San Francisco, California, September 9-10, 1974.

## 1975

Participant, Workshop on Viral Immunology and Immunopathology, April, 1975.

Co-chairman, Workshop on Viral Hepatitis, International Congress of Virology, Madrid, Spain, September 1975.

Invited Speaker, 3rd International Congress for Virology, Madrid, Spain, September 10-17, 1975.

McLaughlin Visiting Professor at the University of Texas Medical Branch, August, 1975.

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Invited Speaker, Symposium on Viral Hepatitis, Society of Medical Consultants to the Armed Forces, December, 1975.

#### 1976

Invited Speaker, Postgraduate Continuation Course on "Gastroenterology for Clinicians-1976," Phoenix, Arizona, March 18-20, 1976.

Invited Participant, Panel Discussion on "Viral Hepatitis Update" at the 57th Annual Meeting of the American College of Physicians, Philadelphia, PA, April 5-8, 1976.

Invited Speaker, 1976 Summit Meeting of the Oklahoma State Medical Association, May 8, 1976, Oklahoma City, Oklahoma.

Invited Speaker, Massachusetts General Hospital and the Massachusetts Eye and Ear Infirmary, Boston Massachusetts, September 30, 1976.

Invited Participant, WHO Expert Committee Meeting on Viral Hepatitis, Oct. 11-16, 1976.

Invited Participant, First Joint Soviet-American Symposium on Problem Area 6 - Blood Transfusion, Soviet Union, October 18-20, 1976.

Invited Participant, AASLD Postgraduate Course on Viral Hepatitis Research Foundation, Tokyo, Japan, November 6-21, 1976.

Participant, Virology Task Force Meeting, November 29-30, 1976.

#### 1977

Invited Speaker, Ohio State University and Children's Hospital, Columbus, Ohio, January 19-20, 1977.

Invited Speaker, Canadian Society for Clinical Investigation, University of Toronto, Toronto, Canada, January 26, 1977.

Invited Speaker, Conference on "Marmosets in Experimental Medicine," Oak Ridge, Tennessee, March 16-18, 1977.

Invited Participant, Third International Congress of Immunology, Sydney, Australia, July 3-8, 1977.

Invited Participant, 5th Scandinavian Virus Symposium, Sweden, August 30 - September 3, 1977.

Invited Participant, International Symposium, Viral and Bacterial Vaccines, Copenhagen, September 7-8, 1977.

Invited Participant, "Clinical Day": New Frontiers in Hepatitis, Montreal, Canada, October 19, 1977.

Invited Speaker, American Society of Clinical Pathology, Las Vegas, October 26, 1977.

Invited Speaker, American Association for the Study of Liver Diseases, Chicago, Illinois, November 1-2, 1977.

Participant, International Workshop on Hepatitis B and Liver Cancer, National Cancer Institute, Bethesda, Maryland, December, 1977.

#### 1978

Invited Participant, Workshop on Research in Digestive Diseases. National Commission on Digestive Diseases, January 16-17, 1978.

Invited Speaker, ICN-UCLA Symposium on Persistent Viruses, Keystone, Colorado, March 13-17, 1978.



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Invited Speaker, Second U.C.S.F. Symposium on Viral Hepatitis, San Francisco, California, March 16-19, 1978.

Invited Speaker, American College of Physician's Course, Mayo Clinic, Rochester, Minnesota, March 29-31, 1978.

Invited Participant, "Task Force on Use and Needs for Chimpanzees," NIH, Bethesda, Maryland, May 22, 1978.

Invited Participant and Co-chairman, US-Japan, Program Symposium on Viral Hepatitis, Tokyo, Japan, July 17-19, 1978.

Invited Participant, Symposium on Viral Hepatitis, Taipei, Taiwan, July 24-26, 1978.

Invited Speaker, Annual Meeting of the Infectious Diseases Society of America, Atlanta, Georgia, October 5-6, 1978.

Invited Speaker, 16th Annual Briefing on "New Horizons of Science," Council for the Advancement of Science Writing, Gatlinburg, Tennessee, November 13-17, 1978.

### 1979

Visiting Professor, Michigan State University School of Medicine, East Lansing, Michigan, January 30, 1979.

Invited Speaker, "Update-Hepatitis," Sponsored by The New York Academy of Gastroenterology, New York City, February 26, 1979.

Invited Consultant, World Health Organization Consultation on Hepatitis B Vaccines, Geneva, Switzerland, March 12-14, 1979.

Invited Participant, International Symposium on Viral Hepatitis, Munich, West Germany, April 5-6, 1979.

Invited Speaker, Symposium on Frontiers of Science and the Liver, 5th International FALK Symposium on Virus and Liver, Basel, Switzerland, September 29 - October 9, 1979.

### 1980

Invited Speaker, Stern Symposium, the Eleventh Symposium on Perspectives in Virology. New York City, New York, February 3-5, 1980.

Expert Consultant in hepatitis, U.S. - China Bilateral Science Agreement. Beijing and Shanghai, China. February 28 - March 10, 1980.

Participant, First U.S.-Japan Symposium on Viral Hepatitis, New York City, New York, March 24-25, 1980.

Visiting Professor and Noble Wiley Jones Lecturer, University of Oregon Medical School, Portland, Oregon, April 28-30, 1980.

Invited Speaker, 1980 Medical Alumni Weekend Program, Tufts University, Boston, Massachusetts, May 1-2, 1980.

Invited Faculty Member, Digestive Diseases Update, American Gastroenterology Association annual meeting, Salt Lake City, Utah, May 18, 1980.

Howard B. Tickton Memorial Lecturer, George Washington University Medical School, Washington, DC, May 24, 1980.

Invited Speaker and Workshop Chairman, International Symposium on Non-A, Non-B hepatitis, Vienna, Austria, June 16-18, 1980.

Invited Speaker, Texas Society of Infectious Diseases, New Orleans, Louisiana, September, 1980.

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Invited Participant, International Workshop on Infectious Hepatitis, Athens, Greece, November, 1980.

Invited Speaker, Symposium on Viral Hepatitis, U.S.-Japan Bilateral Science Agreement, Hakone, Japan, November, 1980.

Invited Speaker, Chicago Gastroenterological Society, Institute of Medicine of Chicago, Combined Meeting, Chicago, Ill., December, 1980.

### 1981

Invited Speaker, Pan American Health Organization, Washington, D.C., January, 1981.

Invited Speaker, Johns Hopkins School of Public Health, February, 1981.

Invited Participant and Member, Organizing Committee, International Symposium on Viral Hepatitis, New York, New York, March, 1981.

Invited Participant, Post-graduate training course "Hepatitis Update," New York City, New York, April, 1981.

Invited Speaker, American Academy of Pediatrics, Washington, D.C. April, 1981.

Invited Speaker, 40th Anniversary Symposium, Irwin Memorial Blood Center, June, 1981.

Invited Speaker, Symposium on Hepatitis B Virus sponsored by the Government of Taipei, Taiwan, November 9-11, 1981.

### 1982

Invited Participant, Workshop on Hepatitis A Virus, Walter Reed Army Institute of Research, Washington, DC, March 5, 1982.

Invited Speaker, Third US-Japan Joint Hepatitis Panel Conference, Washington, DC, March 22-23, 1982.

Visiting Professor, Southwestern Medical School, Dallas, Texas, March 31-April 1, 1982.

Invited Speaker, Annual Meeting of Association of Teachers of Preventive Medicine, Bethesda, MD, April 22, 1982.

Invited Participant, Workshop on Hepatitis B Virus and Hepatocellular Carcinoma, Bethesda, MD, May 3-4, 1982.

Invited Participant, World Health Organization Committee on Viral Hepatitis, Munich, West Germany, May 25-28, 1982.

Invited Speaker, Mini Symposium on Virus B Hepatitis, Washington, D.C., September 10, 1982.

Invited Speaker, Second International Max V. Pettenkofer Symposium on Viral Hepatitis, Munich, West Germany, October 19-22, 1982.

Invited Speaker, Annual Meeting of the American Association for the Study of Liver Diseases, Chicago, Illinois, November 2-3, 1982.

Invited Speaker, American Association of Zoological Veterinarians, New Orleans, Louisiana, November 9, 1982.

Invited Speaker, Scientific Symposium of the American Association of Blood Banks, Anaheim, California, November 10, 1982.

Invited Speaker, Second International IABS Symposium on Viral Hepatitis, Athens, Greece, November 15-18, 1982.

Invited Speaker, Grand Rounds, Washington Hospital Center, Washington, DC, December 14, 1982.

### 1983

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Invited Speaker, Uniformed Services University School of Medicine, Bethesda, Maryland, February 7, 1983.  
Invited Speaker, Johns Hopkins School of Public Health, Baltimore, Maryland, February 11, 1983.  
Invited Speaker and Delegation Member, Symposium on Viral Hepatitis, U.S.-Japan Bilateral Science Agreement, Kyoto, Japan, March 9-10, 1983.  
Invited Speaker and Workshop Organizer, U.S.-India Bilateral Science Agreement, Pune, India, March 14-18, 1983.  
Lecturer, course in Virology, FAES, NIH, Bethesda, Maryland, May 2, 1983.  
Invited Speaker, seminar on hepatitis vaccines, Office of Biologics, FDA, Bethesda, Maryland, May 16, 1983.  
Invited Speaker, International Symposium on Viral Hepatitis, Turin, Italy, June 10-11, 1983.  
Invited Speaker, Eighth International Congress of Cytology, Montreal, Canada, June 19-23, 1983.  
Invited Speaker, Cold Spring Harbor Symposium on Modern Approaches to Vaccines, Cold Harbor, NY, August 31-September 4, 1983.  
Invited Speaker, Hepatology 1983: International Symposium on the Occasion of the 80th Birthday of Hans Popper, Vienna, Austria, October 13-14, 1983.  
Invited Speaker, Ninth Annual Symposium for Clinicians on Hospital Infection Control, University of Virginia School of Medicine, Charlottesville, Virginia, November 18, 1983.  
Lecturer, Virology Class, FAES, NIH, Bethesda, Maryland, November 28, 1983.  
Invited Participant and Consultant, Informal Consultation on Hepatitis B Vaccine Geneva, Switzerland, December 6-8, 1983.  
NIH Representative, Consultation on Hepatitis B Vaccine, U.S.-China Bilateral Science Agreement, Beijing and Shanghai, China, December 12-17, 1983.

#### 1984

Invited Speaker, Johns Hopkins School of Public Health, Baltimore, Maryland, February 8, 1984.  
Invited Participant and Consultant, World Health Organization Informal Consultation on Hepatitis A Virus, Geneva, Switzerland, February 13-14, 1984.  
Invited Speaker, Fourth International symposium on Viral Hepatitis, San Francisco, California, March 8-10, 1984.  
Invited Speaker, Symposium on New Approaches to Control of Viral Infections, Bethesda, Maryland, June 4-5, 1984.  
Invited Speaker, Symposium on New Hepatitis B Vaccines and Clinical Studies Needed for Licensure, Bethesda, Maryland, June 7, 1984.  
Invited Participant, Five-year Review of Hepatitis Panel, U.S.-Japan Bilateral Science Agreement, Tokyo, Japan, July 16-19, 1984.  
Invited Participant and Session Chairman, Sixth International Congress of Virology, Sendai, Japan, September 1-7, 1984.  
Invited Speaker, Annual Meeting of the Canadian Society for Clinical Investigation, Canadian Association of Gastroenterology and Royal College of Physicians of Canada, September 1984.  
Invited Speaker, Symposium on Modern Approaches to Vaccines, Cold Spring Harbor, New York, September 12-16, 1984.

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Invited Speaker, Annual Meeting, The Royal College of Pathologists of Australasia, Perth, Australia, October 15-19, 1984.

Invited Speaker, 1984 Annual Forbes Oration, Fairfield Hospital, Melbourne, Australia, October 23, 1984.

Invited Speaker, National Cancer Institute Workshop on AIDS, Bethesda, Maryland, December 10-11, 1984.

## 1985

Invited Participant, Annual Meeting U.S.-Japan Bilateral Science Agreement, Viral Hepatitis Panel, Oiso, Japan, March 11-12, 1985.

Invited Consultant, Review of National Hepatitis Control Program, Taipei, Formosa, March 14-15, 1985.

Invited Participant, PAHO Ad Hoc Committee Meeting on Viral Hepatitis, Rio de Janeiro, Brazil, May 13-17, 1985.

Invited Participant, Meeting of Scientific Session of Steering Committee of the WHO Hepatitis A Vaccine Development Programme, Bergen, Norway, May 21, 1985.

Invited Participant, 9th Scandinavian Virus Symposium, Bergen, Norway, May 20-22, 1985.

Invited Participant, WHO Steering Committee on Hepatitis, Geneva, Switzerland, July 1-2, 1985.

Invited Participant, WHO Scientific Group on Non-A, Non-B Hepatitis, Delta Antigen-Associated Hepatitis and Blood-borne Human Retroviruses, Tokyo, Japan, October 4-6, 1985.

Invited Participant, American Association for the Study of Liver Diseases, Chicago, Illinois, November 5-6, 1985.

## 1986

Invited Participant, International Symposium on Liver Cancer and Hepatitis, Shanghai, China, January 15-17, 1986.

Co-organizer and Participant, Joint US-Japan Program Hepatitis Conference, Williamsburg, VA, March 7-8, 1986.

Invited Speaker, 1986 Annual Meeting of American Society for Microbiology, Washington, DC, March 23-28, 1986.

Invited Participant, Symposium on Positive Strand RNA Viruses, Keystone, Colorado, April 20-26, 1986.

Co-organizer and Participant, International Symposium on the Hepatitis Delta Virus (HDV) and its Infection, St. Vincent, Aosta, Italy, June 19-20, 1986.

Participant and Member of Committee Meeting of WHO Steering Committee on Hepatitis A and Polio Vaccines, London England, June 30, 1986.

Invited Speaker, IXth International Congress of Infectious and Parasitic Diseases, Munich, West Germany, July 20-26, 1986.

Invited Participant, WHO Viral Hepatitis Control Program, Munich, West Germany, July 25-26, 1986.

Invited Participant, NIAID AIDS Vaccine Workshop, Bethesda, MD, July 28-29, 1986.

Invited Speaker, Annual Meeting of the American Association for the Study of Live Diseases, Chicago, IL, November 2-5, 1986.

Co-organizer and Participant. Workshop on Epidemic Non-A, Non-B Hepatitis, Bethesda, MD, November 19-20, 1986.

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Invited Speaker, Symposium on Progress in Vaccinology, New Delhi, India, December 1-5, 1986.

### 1987

Invited Speaker, Hepatitis Workshop, Palmas Del Mar, San Juan, Puerto Rico, January 28-30, 1987.

Invited Speaker, Symposia on Hepatitis B Virus and AIDS Viruses, Keystone, CO, Mar. 30-April 4, 1987.

Invited Speaker, The Hans Popper Lecture Symposium on Current Concepts in Liver Pathology, Columbia University College of Physicians and Surgeons, New York, NY, April 30-May 1, 1987.

Member Organizing Committee and Invited Speaker International Symposium on Viral Hepatitis, London, England, May 25-28, 1987.

Invited Participant and Member of Committee, WHO Steering Committee on Hepatitis A and Polio Vaccines, London, England, May 29-30, 1987.

Invited Speaker, Workshop on Hepadnavirus Animal Models, Bethesda, MD, September 21-22, 1987.

Invited Speaker, Symposium on Australia Antigen and AIDS. Castro-Caro, Italy, September 29-30, 1987.

Invited Speaker, Third annual Conference on Military Medicine, Bethesda, MD, October 26-27, 1987.

Invited Participant, Technical Advisory Group, Geneva, Switzerland, November 2-5, 1987.

Invited Speaker, Scientific meeting on Control of Hepatitis B Infections in Infants and Children, Whakatane, N.Z., November 12-13, 1987.

Invited Speaker, Symposium on Control of hepatitis B, Hamilton, N.Z., November 17, 1987.

### 1988

Invited Speaker, Wallace Rowe Fourth Annual NIAID Symposium, Bethesda, MD, February 1-2, 1988.

Invited Speaker and Member of Panel, U.S.-Japan Bilateral Science Agreement, Panel on Hepatitis, LaJolla, CA, March 16-17, 1988.

Invited Participant, Symposium on Transfusion Associated Infections and Immune Response, March 20-22, 1988.

Invited Speaker and Member of Advisory Group, Stanford Medical School, Palo Alto, CA, March 23, 1988.

Invited Speaker, Grand Rounds, NIH, Bethesda, MD, March 30, 1988.

Invited Speaker, Grand Rounds, NIH, Bethesda, MD, June 1, 1988.

Invited Participant, USPHS meeting on AIDS, Charlottesville, VA, June 2-3, 1988.

Invited Participant, Symposium on Liver Cell Cancer, Freiburg, Germany, June 5-8, 1988.

Invited Speaker, XX Congress of the International Society of Blood Transfusion, London, England, July 10-15, 1988.

Invited Speaker, Satellite Symposium on Hepatitis Non-A, Non-B, International Association for the Study of the Liver, Toronto, Canada, November 1, 1988.

Invited Speaker, Lecture Series on "Molecular Strategies in Vaccine Development," University of Cincinnati College of Medicine, Cincinnati, Ohio, November 15, 1988.

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Invited Speaker and Participant, Workshop on Hepatitis, World Health Organization, London, England, December 1-3, 1988.

Invited Speaker, II International symposium on Viral Hepatitis and Hepatocellular Carcinoma, Taipei, Taiwan, December 7-9, 1988.

#### 1989

Invited Speaker, International Workshop on Pathogenesis and Prevention of Hepatocellular Carcinoma, Oahu, Hawaii, February 13-15, 1989.

Invited Speaker and Member of Panel, U.S.-Japan Bilateral Science Agreement, Panel on Hepatitis, Gotembe, Japan, March 16-17, 1989.

Invited Speaker, Congressional hearings on Non-AIDS Medical Research, Hepatitis Panel, Washington, DC, April 5, 1989.

Invited Speaker, Postgraduate Course: "Frontiers in Gastroenterology and Hepatology," American Gastroenterological Association, Washington, DC, May 13-14, 1989.

Invited Speaker, International Symposium on Molecular Biology of HBV and NANB Virus, Kanazawa, Japan, June 1, 1989.

Invited Lecturer, Hepatitis C Virus, Queen Mary Hospital, Hong Kong, June 2, 1989.

Invited Participant, International Symposium on Non-A, Non-B Hepatitis, Tokyo, Japan, September 28-29, 1989.

Co-organizer and Participant, International Symposium on Delta Hepatitis, Washington, DC, October 26-28, 1989.

Invited Lecturer on hepatitis viruses, University of Maryland School of Medicine, Baltimore, MD, November 6, 1989.

Invited Speaker, Hepatitis C Virus, Columbia University School of Medicine, New York, NY, November 8, 1989.

Co-organizer and Participant, NIAID/CDC Workshop in Hepatitis A Virus Vaccines, Washington, DC, November 13-15, 1989.

#### 1990

Invited Participant, Hawaii International Symposium on Hepatitis B, Honolulu, HI, January 11, 12, 1990.

Invited Participant, Symposium on Hepatitis C Virus, Abbott Laboratories, North Chicago, IL, February 8, 9, 1990.

Invited Speaker, Hepatitis Viruses, Johns Hopkins School of Public Health, Baltimore, MD, February 14, 16, 1990.

Invited Speaker, Hepatitis C Virus, Yale University School of Medicine, New Haven, CT, February 27, 1990.

Invited Speaker, "Primate models for viral hepatitis." 1990 UCLA Colloquium on Animal Models of Human Viral Diseases, March 31 - April 6, 1990, Keystone, CO.

Co-organizer and Speaker, 1990 International Symposium on Viral Hepatitis and Liver Disease, Houston, TX, April 5-8, 1990.

Invited Speaker, "Hepatitis Viruses: potential for control." Conference on Controversies in Infectious Diseases, Palm Springs, CA, May 3-5, 1990.

Panel Member and Speaker, US-Japan Bilateral Science Agreement, Panel on Hepatitis, Tokyo, Japan, July 16, 17, 1990.

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Organizer and Chairman, Workshop on HBV and HDV, VIIIth International Congress of Virology, Berlin, West Germany, August 26-31, 1990.  
Invited Speaker, International Symposium on Hepatitis Viruses, Rostov, USSR, September 4-7, 1990.  
Co-organizer and Speaker, NIAID/NCI/NIDDK Symposium on Hepatocellular Carcinoma in North America, Bethesda, MD, September 26, 27, 1990.  
Invited Chairman and Speaker, Symposium on Hepatitis C Virus, Laboratory Centre for Disease Control, Toronto, Canada, October 1-2, 1990.  
Invited Speaker, International Symposium on Viral Hepatitis, Genoa, Italy, October 26-27, 1990.  
Invited Speaker, Second International Symposium on Hepatitis C Virus, Los Angeles, CA, November 8-9, 1990.  
Invited Speaker, Hepatitis Viruses, University of Maryland School of Medicine, November 13, 1990.  
Invited Speaker, Sixth Maurice Hilleman Lecture, Children's Hospital, Philadelphia, PA, November 21, 1990.  
Invited Speaker, 3rd Annual Scientific Meeting of the Hong Kong Association for the Study of Liver Diseases, Hong Kong, December 7-9, 1990.

#### 1991

Invited Speaker, Hepatitis Viruses, Uniformed Services University of the Health Science, Bethesda, MD, January 23, 1991.  
Invited Speaker, Hepatitis C, Walter Reed Army Medical Center, Washington, DC, January 31, 1991.  
Invited Speaker, Hepatitis Viruses, Parts 1 and 2, The Johns Hopkins University School of Hygiene and Public Health, Baltimore, MD, February 22 and 25, 1991.  
Invited Speaker, Hepatitis C and E Viruses, Wallace P. Rowe Seventh Annual Symposium on Animal Virology, Bethesda, MD, February 4, 1991.  
Invited Speaker, Hepatitis C, Current Concepts, Albert Einstein College of Medicine, New York City, NY.  
Co-organizer and Speaker, Viral Heterogeneity, Congress on Genetic Heterogeneity of Hepatitis Viruses: Clinical Implications, Sestriere, Italy, April 5-7, 1991.  
Co-organizer and Chairman, US-Japan Cooperative Medical Science Program, Annual Meeting of the Hepatitis Panels, New York City, NY, May 16-17, 1991.  
Recipient, Award for Achievement in Hepatitis Research, and Invited Speaker, "Hepatitis in the 1990s," 10th Anniversary Celebration of Japan Liver Research Foundation, Tokyo, Japan, May 20, 1991.  
Invited Participant, The U.S.-Japan Cooperative Medical Science Program, Bethesda, MD, July 22-26, 1991.  
Invited Speaker, Fourth Annual Hyman J. Zimmerman Lecture, Hepatic Pathology Course sponsored by the Armed Forces Institute of Pathology, Bethesda, MD, September 4-6, 1991.  
Invited Speaker, Symposium on Chimpanzee Conservation and Public Health, Diagon/Bioqual, Inc., Gaithersburg, MD, November 15-16, 1991.  
Invited Speaker, The Third International Symposium on Viral Hepatitis and Hepatocellular Carcinoma, Taipei, Taiwan, December 5-8, 1991.  
Invited Speaker, International Symposium on Hepatology, Kowloon, Hong Kong, December 13-15, 1991.

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## 1992

Invited Presenter, International Symposium on Active Immunization Against Hepatitis A, Vienna, Austria, January 27-29, 1992.  
Invited Speaker, Walter Reed Gastroenterology Symposium, Bethesda, MD, April 3-4, 1992.  
Organizer and Speaker (Annual Meeting), and Chairman, U.S. Delegation of the Hepatitis Panel, U.S.-Japan Cooperative Medical Science Program, Kofu, Japan, April 20-23, 1992.  
Invited Speaker, American Society for Microbiology Annual Meeting, Symposium on Hepatitis Viruses A-F, New Orleans, LA, May 26-30, 1992.  
Invited Speaker and Recipient, Hans Popper Prize, Biennial Meeting of the International Association for the Study of the Liver, Brighton, England, June 3-6, 1992.  
Co-organizer, Chairman and Invited Speaker, Fourth International Symposium on Hepatitis Delta Virus and Liver Disease, Rhodes, Greece, June 8-10, 1992.  
Invited Speaker, International Symposium on Hepatitis A Virus Vaccine, Rhodes, Greece, June 10, 1992.  
Invited Speaker, Giornate Internazionali Di Aggiornamento Sull'epatite Virale, Genova, Italy, October 8-9, 1992.  
Invited Speaker, State-of-the-art lecture (Hepatitis C and E viruses: prospect for controls) American Association for the Study of Liver Diseases Annual Meeting, Chicago, Illinois, November 2, 1992.

## 1993

Invited Speaker, International Symposium on Hepatitis C Virus, Tokyo, Japan, May 7-9, 1993.  
Co-organizer, Chairman and Invited Speaker, VIII Triennial International Symposium on Viral Hepatitis and Liver Disease, Tokyo, Japan, May 10-14, 1993.  
Invited Speaker, FEMS Symposium on the Hepatitis C Virus and its Infection, Istanbul, Turkey, June 29-July 1, 1993.  
Invited Workshop Chairman, IX International Congress of Virology, Glasgow, Scotland, August 8-13, 1993.  
Invited Speaker, Current Status of Hepatitis C virus research, Medimmune, Inc., Gaithersburg, Maryland, September 8, 1993.  
Invited Speaker and Participant, 104th Ross Conference on Pediatric Research, San Diego, California, September 18-21, 1993.  
Invited Speaker, National Academy of Sciences Colloquium on Changes in Human Ecology and Behavior: Effects on Infectious Diseases, Washington D.C., September 27-28, 1993.  
Invited Speaker and Participant, 20th Anniversary of AUSRIA Symposium, Abbott Laboratories, Abbott Park, Illinois, November 1-2, 1993.  
Invited Speaker, Symposium on Viral Safety of Plasma-derived Replacement Factors for Hemophilia: How Safe is Safe?, Armour Pharmaceutical Company, 35th Annual Meeting of the American Society of Hematology, St. Louis, Missouri, December 3, 1993.

## 1994

Organizer and Speaker (Annual Meeting), and Chairman, U.S. Delegation of the Hepatitis Panel, U.S.- Japan Cooperative Medical Science Program, Bethesda, Maryland, February 11, 1994.  
Invited Speaker and Consultant, 7th Immunostudy Update (sponsored by ImmunoAg, Vienna, Austria), St. Thomas, U.S. Virgin Islands, March 14-16, 1994.



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Invited Member, Scientific Advisory Committee to the Southwest Foundation, San Antonio, Texas, April 5-6, 1994.

Participant, *Flaviviridae* Taxonomy Committee meeting held in conjunction with 2<sup>nd</sup> International Meeting on Hepatitis C Virus and Related Viruses, San Diego, CA, July 31-August 6, 1994.

Invited Participant, ceremony in conjunction with awarding of the European Prix Galien to SmithKline Beecham Pharmaceutical Company for development of the hepatitis A vaccine, Berlin, Germany, September 30, 1994.

Invited Speaker, 34th Interscience Conference on Antimicrobial Agents and Chemotherapy, Orlando, Florida, October 4-7, 1994.

Co-organizer and Invited Speaker, The 25th International Symposium of the Princess Takamatsu Cancer Research Fund, Tokyo, Japan, November 14-17, 1994.

#### 1995

Organizer and Speaker (Annual Meeting) and Chairman, U.S. Delegation of the Hepatitis Panel, U.S.-Japan Cooperative Medical Science Program, Tokyo, Japan, January 22-24, 1995.

Invited Speaker, Symposium on Hepatitis A: Biology, Epidemiology and Prevention, USUHS, Bethesda, Maryland, May 23, 1995.

Invited Speaker and Chairman, Fifth International Symposium on Hepatitis Delta Virus and Liver Disease, 3rd International Meeting on Hepatitis C Virus and Related Viruses (Molecular Virology and Pathogenesis), Brisbane, Australia, August 28-September 3, 1995.

Invited Speaker, International Symposium on Enterically-Transmitted Hepatitis Viruses, Paris, France, October 16-17, 1995.

Invited Speaker, Basel Liver Week 1995, Basel, Switzerland, October 17-23, 1995.

#### 1996

Organizer and Speaker (Annual Meeting) and Chairman, U.S. Delegation of the Hepatitis Panel, U.S.-Japan Cooperative Medical Science Program, Kona, Hawaii, January 17-18, 1996.

Co-organizer and Invited Speaker, 1996 Keystone Symposia on Molecular and Cellular Biology conference on Hepatitis C and Beyond, Burlington, Vermont, January 23-29, 1996.

Invited Speaker, Hans Popper Hepatopathology Society Meeting, Washington, DC, March 24, 1996.

Co-organizer and Invited Speaker, IX Triennial International Symposium on Viral Hepatitis and Liver Disease, Rome, Italy, April 21-25, 1996.

Invited Participant, American Society for Virology 15th Annual Meeting, London, Ontario, Canada, July 13-17, 1996.

Invited Speaker, Hepatology Update 1996 (Festschrift for Dr. Fenton Schaffner), New York City, New York, October 24, 1996.

#### 1997

Invited Participant and Speaker, US-Egyptian Study of Viral Hepatitis, Cairo, Egypt, February 19-25, 1997.

Member of Organizing Committee and Participant, Fourth International Meeting on Hepatitis C Virus and Related Viruses, Kyoto, Japan, March 6-10, 1997.

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Invited Speaker, NIH Consensus Development Conference on Management of Hepatitis C, Bethesda, Maryland, March 24-26, 1997.  
Invited Speaker, Gastroenterology in the Centennial Year... and Beyond, American Gastroenterological Association postgraduate course, Washington, DC, May 10-11, 1997.  
Invited Chairman and Participant, Chronic Viral Hepatitis: Emerging Issues and Research Directions, American Association for the Study of Liver Diseases Single Topic Symposium, Tysons Corner, Virginia, June 27-28, 1997.  
Invited Organizer and Speaker, Symposium on Viral Hepatitis. Mechanisms of Chronicity and Disease Progression, held in conjunction with the Second International Meeting on Therapy and Liver Diseases, Barcelona, Spain, September 17-19, 1997  
Invited Speaker, International Symposium on Viral Hepatitis, Warsaw, Poland, Oct. 24-25, 1997.

#### 1998

Invited Participant and Speaker, U.S.-Egyptian Study of Viral Hepatitis, Luxor, Egypt, March 23, 1998  
Invited Chairman and participant, WHO technical consultation on Hepatitis meeting, Geneva, Switzerland, April 25-30, 1998.  
Invited Speaker, Nobel symposium "Intracellular & Persistent Infection," Stockholm, Sweden, June 6-10, 1998.  
Invited participant, Fifth International Meeting on Hepatitis C Virus and Related Viruses, Venice, Italy, June 25-28, 1998.  
Invited Speaker, SmithKline Beecham Biologicals First Extramural R&D Symposium, Brussels, Belgium, September 29-30, 1998.  
Invited Speaker, General Meeting of the Japan Society of Hepatology, Kanazawa, Japan, October 16-17, 1998.

#### 1999

Invited Participant and Speaker, U.S.-Egyptian Study of Viral Hepatitis, Aswan, Egypt, February 20-21, 1999.  
Invited Speaker, Abbott Laboratories Distinguished Speaker Series, North Chicago, Illinois, May 21, 1999.  
Invited Speaker, 99<sup>th</sup> General Meeting, American Society for Microbiology, Chicago, Illinois, May 30-June 3, 1999.  
Co-organizer, Sixth International Symposium on HCV and Related Viruses, Bethesda, Maryland, June 6-9, 1999.  
Invited Speaker, Annual Conference of the Association of Practitioners in Infection Control, Baltimore, Maryland, June 21, 1999.  
Invited Speaker, Second International meeting on Scientific Research Towards the Third Millennium, Pisto Foundation, Cagliari, Sardinia, Italy, October 8-9, 1999.  
Invited Speaker, Annual Meeting of the Infectious Diseases Society of America, Philadelphia, Pennsylvania, November 18-21, 1999.  
Invited Participant, Annual Meeting of the American Society of Tropical Medicine and Hygiene, Washington, DC, November 28-December 2, 1999.

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## 2000

Invited Participant and Speaker, U.S.-Egyptian Study of Viral Hepatitis, Sharm el-Sheikh, Egypt, February 26-28, 2000.

Organizer and Invited Speaker, Tenth International Symposium on Viral Hepatitis and Liver Disease, Atlanta, Georgia, April 9-13, 2000.

Invited Speaker, Eleventh Virology Symposium, University of Pittsburgh, Pittsburgh, Pennsylvania, May 23, 2000.

Invited Speaker, Annual Meeting of the Infectious Diseases Society of America, New Orleans, Louisiana, September 7-10, 2000.

Invited Speaker, 51<sup>st</sup> Annual Meeting American Association for the Study of Liver Diseases (AASLD) and Postgraduate Course, Dallas, Texas, October 27-31, 2000.

## 2001

Invited Participant and Speaker, US-Egyptian Study of Viral Hepatitis, Alexandria, Egypt, March 24-25, 2001.

Invited Speaker, AASLD Hepatitis Single Topic Conference on New Therapeutic Strategies for Hepatitis C, Chicago, Illinois, June 15-16, 2001.

Invited Chair and Speaker, Annual Meeting of the American Society of Tropical Medicine and Hygiene, Atlanta, Georgia, November 11-15, 2001.

## 2002

Invited Participant and Speaker, US-Egyptian Study of Viral Hepatitis, Cairo, Egypt, March 6-7, 2002.

Invited Participant and Chair, 9th International Meeting on HCV and Related Viruses, La Jolla, California, July 7-11, 2002.

Invited Lecturer on Hepatitis Viruses, Graduate Virology Course, University of Maryland School of Medicine, Baltimore, Maryland, Sept. 27, 2002.

Invited Participant, NIH Science Festival, Bethesda, Maryland, Oct. 16-17, 2002.

Invited Speaker, Symposium on Hepatitis A to Z, 40th Annual Meeting of Infectious Diseases Society of America, Chicago, Illinois, Oct. 24-27, 2002.

Invited Speaker: Leon Schiff State-of-the-Art Lecture, 53rd Annual Meeting, American Association for the Study of Liver Diseases, Boston, Massachusetts, Nov. 1-5, 2002.

## 2003

Invited Speaker, Symposium on "Hepatitis A to E and Beyond," The Royal Society of Medicine, London, England, Feb. 26-27, 2003.

Invited Organizer and Speaker, 11th International Symposium on Viral Hepatitis and Liver Disease, Sydney, Australia, April 6-10, 2003.

Invited Chair, Symposium on State-of-the-Art of Hepatology: Molecular and Cell Biology, 12th Falk Liver Week, Freiburg, Germany, Oct. 15-22, 2003.

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Invited Participant and Speaker, 10th International Meeting on HCV and Related Viruses, Kyoto, Japan, Dec. 2-6, 2003.

## 2004

Invited Speaker, NIH Lecture Series "Demystifying Medicine," Bethesda, Maryland, Jan. 6, 2004.

Invited Speaker and Participant, 6th Annual US-Egyptian Study of Viral Hepatitis, Cairo, Egypt, Mar. 2-3, 2004.

Invited Speaker, Symposium on Vaccines in honor of Professor Ruth Nussenzweig, New York City, New York, Mar. 22-23, 2004.

Invited Speaker, Symposium on Chimpanzees in Biomedical Research, Bastrop, Texas, May 3-4, 2004.

Invited Speaker, Johns Hopkins-Australia Liver Diseases Conference, Bethesda, Maryland, Sept. 15, 2004.

## 2005

Invited Speaker, NIAID Workshop on Vaccines for HCV, Bethesda, MD, Feb. 1-2, 2005.

Invited Speaker and Participant, Indo-US Science and Technology Forum on Hepatitis E Virus, New Delhi India, Feb. 18-19, 2005.

Invited Keynote Speaker, International Conference on Emerging Diseases, Al-Ain, United Arab Emirates, Feb. 26-Mar. 1, 2005.

Invited Speaker and Participant, Seventh Annual US-Egyptian Study of Viral Hepatitis, Cairo Egypt, Mar. 2-3, 2005.

Invited Keynote Speaker, Australian Centre for HIV and Hepatitis Virology Research, 2<sup>nd</sup> National Scientific Workshop, Terrigal, Aust., May 4-6, 2005.

Invited Speaker and Participant, Cornell University Center for the Study of Hepatitis C, Symposium on Hepatitis C Immunobiology, New York City, NY, June 29-July 1, 2005.

American Society for Microbiology 45<sup>th</sup> Interscience Congress on Antimicrobial Agents and Chemotherapy Symposium on Viral Hepatitis, New Orleans, LA, Sept. 21-24, 2005.

Invited Co-Chair, Symposium on Hepatitis E Virus (HEV): Global Burden of Disease and Recent Vaccine Trials With a Recombinant HEV Protein, Washington, DC, Dec. 11-15, 2005.

4/19/06

Partial List of Post-Doctoral Fellows and Senior Scientists Supervised by Dr. Robert H. Purcell

Allander, Tobias  
Baroudy, Bahige M.  
Bukh, Jens  
Chen, Ding-Shinn  
Chen, Hong-Shu  
Chung, Cathie T.  
Cohen, Jeffrey I.  
Dienes, Hans P.  
Dienstag, Jules L.  
Farci, Patrizia  
Feinstone, Stephen M.  
Forns, Xavier  
Girones, Rosina  
Gust, Ian  
Gold, Jon W.  
Hansson, Bengt G.  
He, Le-Fang  
Hess, George  
Hill, David A.  
Hirsch, Vanessa M.  
Johnson, Philip  
Johnson, Rodney  
Kabrane-Lazizi, Yamina  
Kamimura, Tom  
Kaneko, Shuichi  
Karron, Ruth A.  
Kew, Michael  
Kiyosawa, Kendo  
Koshy, Rajen  
Lander, Jerry J.  
Langley, Raymond  
Lee, Jae Woo  
Mathiesen, Lars R.  
McAuliffe, Vincent J.  
Meunier Jean-Christophe  
Miller, Roger H.

Moritsugu, Yasuo  
Nam, Jae Hwan  
Ogata, Norio  
Olmsted, Robert  
Peterson, John M.  
Rizzetto, Mario  
Romeo, Rafaella  
Sakai, Akito  
Schofield, Darren J.  
Schultheiss, Tina  
Shimizu, Yohko K.  
Shimoda, Atsushi  
Shiraishi, Hiro  
Stewart, Deneen R.  
Sugata, Fumihiko  
Takikawa, Shingo  
Tassopoulos, Nickolaos  
Tellier, Raymond  
Ticehurst, John R.  
Tsarev, Sergei A.  
Weitz, Manfred  
Wen, Yu-mei  
Yanagi, Masayuki  
Yin, Shu-Rong  
Yu, Minshu  
Zhang, Mingdong

# BIBLIOGRAPHY OF ROBERT H. PURCELL

1962

1. Purcell RH, Bonar RA, Beard D, Beard JW. Virus of avian myeloblastosis XX. Amino acid composition. *J Nat Cancer Inst* 1962;**28**:1003-1011.

1963

2. Bonar RA, Purcell RH, Beard JW, Beard D. Virus of avian myeloblastosis (BAI, Strain A). XIV. Nucleotide composition of the pentose nucleic acid and comparison with strain R erythro-blastosis. *J Nat Cancer Inst* 1963;**31**:705-716.

1965

3. Jensen KE, Senterfit LB, Chanock RM, Smith CB, Purcell RH. An inactivated *Mycoplasma pneumoniae* vaccine. *JAMA* 1965;**194**:248-252.
4. Mufson MA, Ludwig WM, Purcell RH, Cate TR, Taylor-Robinson D, Chanock RM. Exudative pharyngitis following experimental *Mycoplasma hominis* type 1 infection. *JAMA* 1965;**192**:1146-1152.
5. Somerson NL, Purcell RH, Taylor-Robinson D, Chanock RM. Hemolysin of *Mycoplasma pneumoniae*. *J Bacteriol* 1965;**89**:813-818.
6. Taylor-Robinson D, Ludwig WM, Purcell RH, Mufson MA, Chanock RM. Significance of antibody to *Mycoplasma hominis* type 1 as measured by indirect hemagglutination. *Proc Soc Exp Biol Med* 1965;**118**:1073-1083.

1966

7. Edmondson WP, Purcell RH, Gundelfinger BF, Love JW, Ludwig W, Chanock RM. Immunization by selective infection with type 4 adenovirus grown in human diploid tissue culture. II. specific protective effect against epidemic disease. *JAMA* 1966;**195**(6):453-459.
8. Purcell RH, Somerson NL, Fox H, Wong DC, Turner HC, Chanock RM. Identification of acid-inducing agent and related mycoplasmas as *Mycoplasma hyorhinis*. *J Nat Cancer Inst* 1966;**37**:251-253.
9. Purcell RH, Taylor-Robinson D, Wong D, Chanock RM. Color test for the measurement of antibody to T-strain mycoplasmas. *J Bacteriol* 1966;**92**(1):6-12.
10. Purcell RH, Taylor-Robinson D, Wong DC, Chanock RM. A color test for the measurement of antibody to the non-acid-forming human *Mycoplasma* species. *Am J Epidemiol* 1966;**84**(1):51-66.
11. Smith CB, Purcell RH, Bellanti JA, Chanock RM. Protective effect of antibody to parainfluenza type 1 virus. *N Engl J Med* 1966;**275**(21):1145-1152.
12. Taylor-Robinson D, Purcell RH. Mycoplasmas of the human urogenital tract and oropharynx and their possible role in disease: a review with some recent observations. *Proc R Soc Med* 1966;**59**(11 Part 1):1112-1116.
13. Taylor-Robinson D, Purcell RH, Wong DC, Chanock RM. A colour test for the measurement of antibody to certain mycoplasma species based upon the inhibition of acid production. *J Hyg (Lond)* 1966;**64**(1):91-104.

1967

14. Harwick HJ, Iuppa JB, Purcell RH, Fekety Jr FR. *Mycoplasma hominis* septicemia associated with abortion. *Am J Obstet Gynecol* 1967;**99**(5):725-727.
15. Purcell RH, Chanock RM. Role of mycoplasmas in human respiratory disease. *Med Clin North Am* 1967;**51**(3):791-802.

16. Purcell RH, Wong D, Chanock RM, Taylor-Robinson D, Canchola J, Valdesuso J. Significance of antibody to mycoplasma as measured by metabolic-inhibition techniques. *Ann N Y Acad Sci* 1967;**143**(1):664-675.
17. Smith GB, Purcell RH, Chanock RM. Effect of amantadine hydrochloride on parainfluenza type 1 virus infections in adult volunteers. *Am Rev Respir Dis* 1967;**95**(4):689-690.

#### 1968

18. Purcell RH. The role of mycoplasmas in human disease. In: Kumate J, ed, *Impresiones Modernas*. Mexico SA, XII International Congress of Pediatrics, Memoirs, Official Reports, 1968 **II**:367-370.

#### 1969

19. Fox H, Purcell RH, Chanock RM. Characterization of a newly identified mycoplasma (*Mycoplasma orale* type 3) from the human oropharynx. *J Bacteriol* 1969;**98**(1):36-43.
20. Gerber P, Walsh JH, Rosenblum EN, Purcell RH. Association of EB-virus infection with the post-perfusion syndrome. *Lancet* 1969;**1**(595):593-595.
21. Gerin JL, Purcell RH, Hoggan MD, Holland PV, Chanock RM. Biophysical properties of Australia antigen. *J Virol* 1969;**4**(5):763-768.
22. Holland PV, Walsh JH, Morrow AG, Purcell RH. Failure of Australia antibody to prevent post-transfusion hepatitis. *Lancet* 1969;**2**(620):553-555.
23. Purcell RH and Chanock RM. Mycoplasmas of human origin. In : Lennette EH and Schmidt NJ, eds, *Diagnostic Procedures for Viral and Rickettsial Diseases*. New York, American Public Health Association, 1969:786-825.
24. Purcell RH, Holland PV, Walsh JH, Wong DC, Morrow AG, Chanock RM. A complement-fixation test for measuring Australia antigen and antibody. *J Infect Dis* 1969;**120**(3):383-386.
25. Purcell RH, Taylor-Robinson D, Chanock RM. Serology of the mycoplasmas of man. In Hayflick L ed, *The Mycoplasmales and the L-phase of Bacteria*. New York, Appleton-century-Crofts, Educ. Division, Meredith Corp., 1969:221-264.

#### 1970

26. Blumberg BS, Byrne RJ, Chanock RM, Cockburn WC, Kono Y, Koza J, McCollum RW, Menache D, Penttinen K, Purcell RH. Viral hepatitis and tests for the Australia (hepatitis-associated) antigen and antibody. *Bull World Health Organ* 1970;**42**(6):957-992.
27. Chanock RM, Steinberg P, Purcell RH. Mycoplasmas in human respiratory tract disease. In Sharp JR, ed, *The Role of Mycoplasma and L Forms of Bacteria in Disease*. Springfield, IL, CC Thomas, 1970:110-136.
28. Harwick HJ, Purcell RH, Iuppa JB, Fekety FR, Jr. *Mycoplasma hominis* and abortion. *J Infect Dis* 1970;**121**(3):260-268.
29. Purcell RH, Gerin JL, Holland PV, Cline W, Chanock RM. Preparation and characterization of complement-fixing hepatitis-associated antigen and antiserum. *J Infect Dis* 1970;**121**(2):222-226.
30. Razin S, Valdesuso J, Purcell RH, Chanock RM. Electrophoretic analysis of cell proteins of T-strain mycoplasmas isolated from man. *J Bacteriol* 1970;**103**(3):702-706.
31. Walsh JH, Gerber P, Purcell RH. Viral etiology of the postperfusion syndrome. *Am Heart J* 1970;**80**(1):146.
32. Walsh JH, Purcell RH, Morrow AG, Chanock RM, Schmidt PJ. Posttransfusion hepatitis

after open-heart operations. Incidence after the administration of blood from commercial and volunteer donor populations. *JAMA* 1970;**211**(2):261-265.

## 1971

33. Alter HJ, Holland PV, Purcell RH. Counterelectrophoresis for detection of hepatitis-associated antigen: methodology and comparison with gel diffusion and complement fixation. *J Lab Clin Med* 1971;**77**(6):1000-1010.
34. Gerin JL, Holland PV, Purcell RH. Australia antigen: large-scale purification from human serum and biochemical studies of its proteins. *J Virol* 1971;**7**(5):569-576.
35. Harwick HJ, Purcell RH, Iuppa JB, Fekety FR, Jr. *Mycoplasma hominis* and postpartum febrile complications. *Obstet Gynecol* 1971;**37**(5):765-768.
36. Hill DA, Walsh JH, Purcell RH. Failure to demonstrate circulating interferon during incubation period and acute stage of transfusion-associated hepatitis. *Proc Soc Exp Biol Med* 1971;**136**(3):853-856.
37. Lander JJ, Alter HJ, Purcell RH. Frequency of antibody to hepatitis-associated antigen as measured by a new radioimmunoassay technique. *J Immunol* 1971;**106**:1166-1171.
38. Lander JJ, Giles JP, Purcell RH, Krugman S. Viral hepatitis, type B (MS-2 strain). Detection of antibody after primary infection. *N Engl J Med* 1971;**285**(6):303-307.
39. Purcell RH, Valdesuso JR, Cline WL, James WD, Chanock RM. Cultivation of mycoplasmas on glass. *Appl Microbiol* 1971;**21**(2):288-294.
40. Purcell RH, Walsh JH, Holland PV, Morrow AG. Studies of transfusion-associated hepatitis. In: Sanders M, Schaeffer M, eds, *Viruses Affecting Man and Animals*. St. Louis, MO, Warren H. Green, Inc. 1971:274-283.
41. Purcell RH, Walsh JH, Holland PV, Morrow AG, Wood S, Chanock RM. Seroepidemiological studies of transfusion-associated hepatitis. *J Infect Dis* 1971;**123**(4):406-413.

## 1972

42. Alter HJ, Holland PV, Purcell RH, Lander JJ, Feinstone SM, Morrow AG, Schmidt PJ. Posttransfusion hepatitis after exclusion of commercial and hepatitis-B antigen-positive donors. *Ann Intern Med* 1972;**77**(5):691-699.
43. Cherubin CE, Purcell RH, Lander JJ, McGinn TG, Cone LA. Acquisition of antibody to hepatitis B antigen in three socioeconomically different medical populations. *Lancet* 1972;**2**(769):149-151.
44. Dietzman DE, Madden DL, Sever JL, Lander JJ, Purcell RH. Lack of relationship between Down's syndrome and maternal exposure to Australia antigen. *Am J Dis Child* 1972;**124**(2):195-197.
45. Holland PV, Alter HJ, Purcell RH, Lander JJ, Sgouris JT, Schmidt PJ. Hepatitis B antigen (HB Ag) and antibody (anti-HB Ag) in cold ethanol fractions of human plasma. *Transfusion* 1972;**12**(6):363-370.
46. Holland PV, Purcell RH, Smith H, Alter HJ. Subtyping of hepatitis-associated antigen (HB-Ag); simplified technique with counterelectrophoresis. *J Immunol* 1972;**109**(3):420-425.
47. Lander JJ, Holland PV, Alter HJ, Chanock RM, Purcell RH. Antibody to hepatitis-associated antigen. Frequency and pattern of response as detected by radioimmunoprecipitation. *JAMA* 1972;**220**(8):1079-1082.
48. London WT, Alter HJ, Lander JJ, Purcell RH. Serial transmission in rhesus monkeys of an agent related to hepatitis-associated antigen. *J Infect Dis* 1972;**125**(4):382-389.



49. Maynard JE, Berquist KR, Krushak DH, Purcell RH. Experimental infection of chimpanzees with the virus of hepatitis B. *Nature* 1972;**237**:514-515.
50. Purcell RH. Open Discussion: HBAg in blood donors. In: Vyas GN, Perkins HA, Schmid RS, eds, *Hepatitis and Blood Transfusion*. New York, Grune and Stratton, Inc. 1972:311-316.

# 1973

51. Alter HJ, Holland PV, Lander JJ, Feinstone SM, Purcell RH. The Australia antigen and post-transfusion hepatitis. In: Preier JE, Friedman H, eds, *Australia Antigen*. Baltimore, MD, University Park Press, 1973:205-211.
52. Alter HJ, Holland PV, Purcell RH, Gerin JL. The Ausria test: critical evaluation of sensitivity and specificity. *J Blood* 1973;**42**(6):947-957.
53. Feinstone SM, Kapikian AZ, Purcell RH. Hepatitis A: detection by immune electron microscopy of a viruslike antigen associated with acute illness. *Science* 1973;**182**(116):1026-1028.
54. Hill DA, Philip RN, Greaves AB, Purcell RH. Mycoplasmas recovered from patients with urethritis. *Br J Vener Dis* 1973;**49**(6):524-530.
55. Holland PV, Alter HJ, Purcell RH, Walsh JH, Morrow AG, Schmidt PJ. The infectivity of blood containing the Australia antigen. In: Preier JE and Friedman H, eds, *Australia Antigen*. Baltimore, MD, University Park Press, 1973:191-203.
56. Kaplan PM, Greenman RL, Gerin JL, Purcell RH, Robinson WS. DNA polymerase associated with human hepatitis B antigen. *J Virol* 1973;**12**(5):995-1005.
57. Lewis TL, Alter HJ, Chalmers TC, Holland PV, Purcell RH, Alling DW, Young D, Frenkel LD, Lee SL, Lamson ME. A comparison of the frequency of hepatitis-B antigen and antibody in hospital and nonhospital personnel. *N Engl J Med* 1973;**289**(13):647-651.
58. Purcell RH, Wong DC, Alter HJ, Holland PV. Microtiter solid-phase radioimmunoassay for hepatitis B antigen. *Appl Microbiol* 1973;**26**(4):478-484.
59. Reeves WC, Peters CJ, Lander JJ, Purcell RH, Johnson KM. Differences in the prevalence of hepatitis B antigen and antibody among Panamanian Indian populations. *J Infect Dis* 1973;**128**(3):265-270.

# 1974

60. Alter HJ, Holland PV, Purcell RH. Viral hepatitis. Light at the end of the tunnel. *JAMA* 1974;**229**(3):293-294.
61. Del Giudice RA, Purcell RH, Carski TR, Chanock RM. Mycoplasma lipophilum sp. nov. *Internatl J System Bacteriol* 1974;**24**(2):147-153.
62. Feinstone SM, Kapikian AZ, Gerin JL, Purcell RH. Buoyant density of the hepatitis A virus-like particle in cesium chloride. *J Virol* 1974;**13**(6):1412-1414.
63. Freundt EA, Taylor-Robinson D, Chanock RM, Black FT, Purcell RH. Proposal for *Mycoplasma buccale* nom. nov. and *Mycoplasma faucium* nom. nov. for *Mycoplasma orale* "types" 2 and 3, respectively. *Int J Syst Bacteriol* 1974;**24**(2):252-255.
64. Gold JW, Alter HJ, Holland PV, Gerin JL, Purcell RH. Passive hemagglutination assay for antibody to subtypes of hepatitis B antigen. *J Immunol* 1974;**112**(3):1100-1106.
65. Purcell RH. Viral hepatitis. *Prev Med* 1974;**3**(4):529-534.
66. Purcell RH, Gerin JL, Almeida JB, Holland PV. Radioimmunoassay for the detection of the core of the Dane particle and antibody to it. *Intervirology* 1974;**2**(4):231-243.
67. Shepard MC, Lunceford CO, Ford DK, Purcell RH, Taylor-Robinson D, Razin S, Black FT. *Urealplasma urealyticum* gen. nov. sp. nov.: proposed nomenclature for the human

T (T-strain) mycoplasmas. *Internatl J System Bacteriol* 1974;**24**(2):160-171.

1975

68. Alter HJ, Holland PV, Morrow AG, Purcell RH, Feinstone SM, Moritsugu Y. Clinical and serological analysis of transfusion-associated hepatitis. *Lancet* 1975;**2**(7940):838-841.
69. Alter HJ, Holland PV, Purcell RH. The emerging pattern of post-transfusion hepatitis. *Am J Med Sci* 1975;**270**(2):329-334.
70. Barker LF, Maynard JE, Purcell RH, Hoofnagle JH, Berquist KR, London WT. Viral hepatitis, type B, in experimental animals. *Am J Med Sci* 1975;**270**(1):189-195.
71. Barker LF, Maynard JE, Purcell RH, Hoofnagle JH, Berquist KR, London WT, Gerety RJ, Krushak DH. Hepatitis B virus infection in chimpanzees: titration of subtypes. *J Infect Dis* 1975;**132**(4):451-458.
72. Berquist KR, Peterson JM, Murphy BL, Ebert JW, Maynard JE, Purcell RH. Hepatitis B antigens in serum and liver of chimpanzees acutely infected with hepatitis B virus. *Infect Immun* 1975;**12**(3):602-605.
73. Dienstag JL, Feinstone SM, Kapikian AZ, Purcell RH. Letter: Immune electron microscopy and hepatitis A. *Lancet* 1975;**1**(7898):102.
74. Dienstag JL, Feinstone SM, Kapikian AZ, Purcell RH, Boggs JD, Conrad ME. Fecal shedding of hepatitis-A antigen. *Lancet* 1975;**1**:765-767.
75. Dienstag JL, Feinstone SM, Purcell RH, Hoofnagle JH, Barker LF, London WT, Popper H, Peterson JM, Kapikian AZ. Experimental infection of chimpanzees with hepatitis A virus. *J Infect Dis* 1975;**132**(5):532-545.
76. Dienstag JL, Pelon W, Tyeryar F, Purcell RH. Serologic comparison of hepatitis A antigen to echovirus 25 isolate CR69(076) recovered from a patient with viral hepatitis. *Intervirology* 1975;**6**(4-5):319-324.
77. Dienstag JL, Routenberg JA, Purcell RH, Hooper RR, Harrison WO. Foodhandler-associated outbreak of hepatitis type A. An immune electron microscopic study. *Ann Intern Med* 1975;**83**(5):647-650.
78. Feinstone SM, Kapikian AZ, Purcell RH, Alter HJ, Holland PV. Transfusion-associated hepatitis not due to viral hepatitis type A or B. *N Engl J Med* 1975;**292**(15):767-770.
79. Gerin JL, Ford EC, Purcell RH. Biochemical characterization of Australia antigen. Evidence for defective particles of hepatitis B virus. *Am J Pathol* 1975;**81**(3):651-668.
80. (Removed duplicate of #108)
81. Kapikian AZ, Feinstone SM, Purcell RH, Wyatt RG, Thornhill TS, Kalica AR, Chanock RM. Detection and identification by immune electron microscopy of fastidious agents associated with respiratory illness, acute nonbacterial gastroenteritis and hepatitis A. In: *Perspectives in Virology IX*, 1975:9-47.
82. Maynard JE, Lorenz D, Bradley DW, Feinstone SM, Krushak DH, Barker LF, Purcell RH. Review of infectivity studies in nonhuman primates with virus-like particles associated with MS-1 hepatitis. *Am J Med Sci* 1975;**270**(1):81-85.
83. Moritsugu Y, Gold JW, Wagner J, Dodd RY, Purcell RH. Hepatitis B core antigen. Detection of antibody by radioimmunoprecipitation. *J Immunol* 1975;**114**(6):1792-1798.
84. Murphy BL, Peterson JM, Ebert JW, Berquist KR, Maynard JE, Purcell RH. Immunofluorescent localization of hepatitis B antigens in chimpanzee tissues. *Intervirology* 1975;**6**(4-5):207-211.
85. Peterson JM, Dienstag JL, Purcell RH. Immune response to hepatitis viruses. In Notkins

- AL, ed, *Viral Immunology and Immunopathology*, Academic Press, 1975:213-236.
86. Purcell RH. Current status of diagnostic tests for viral hepatitis. In: Mathieu and Kahan, eds, *Immunological Aspects of Anesthetic and Surgical Practice*, Gene & Stratton, Inc. 1975:205-225
87. Purcell RH. Current understanding of hepatitis B virus infection and its implications for immunoprophylaxis. In: *Perspectives in Virology IX*, 1975:49-76.
88. Purcell RH. Overview and summing up. *Proceedings of the First Australasian Hepatitis Symposium*, Melbourne, Australia, Abbott Laboratories. 1975:293-296
89. Purcell RH. The nature of the hepatitis B virus. *Proceedings of the First Australasian Hepatitis Symposium*, Melbourne, Australia, Abbott Laboratories 1975:93-100.
90. Purcell RH, Dienstag JL, Feinstone SM, Kapikian AZ. Relationship of hepatitis A antigen to viral hepatitis. *Am J Med Sci* 1975;**270**(1):61-71.
91. Purcell RH, Feinstone SM, Kapikian AZ. Recent advances in hepatitis A research. In: Greenwalt TJ and Jameison GA, eds, *Proceedings of a Symposium on Transmissible Disease and Blood Transfusion*, Grune & Stratton, Inc. 1975:11-26.
92. Purcell RH, Gerin JL. Hepatitis B subunit vaccine: a preliminary report of safety and efficacy tests in chimpanzees. *Am J Med Sci* 1975;**270**(2):395-399.
93. Reeves WC, Peters CJ, Moon TE, Purcell RH. Familial clustering of hepatitis B surface antigen among Panamanian Indians. *J Infect Dis* 1975;**131**(1):67-70.
94. Reeves WC, Peters CJ, Purcell RH. The epidemiology of hepatitis B antigen and antibody among Panamanian Cuna Indians. *Am J Trop Med Hyg* 1975;**24**(5):873-875.

# 1976

95. Alter HJ, Seeff LB, Kaplan PM, McAuliffe VJ, Wright EC, Gerin JL, Purcell RH, Holland PV, Zimmerman HJ. Type B hepatitis: the infectivity of blood positive for e antigen and DNA polymerase after accidental needlestick exposure. *N Engl J Med* 1976;**295**(17):909-913.
96. Barker LF, Purcell RH. Hepatitis B virus. In: Russel P, ed., *Manual on Clinical Immunology*, Washington, DC, American Society for Microbiology. 1976:481-487.
97. Dienstag JL, Alling DW, Purcell RH. Quantitation of antibody to hepatitis A antigen by immune electron microscopy. *Infect Immun* 1976;**13**(4):1209-1213.
98. Dienstag JL, Cline WL, Purcell RH. Detection of cytomegalovirus antibody by immune adherence hemagglutination. *Proc Soc Exp Biol Med* 1976;**153**(3):543-548.
99. Dienstag JL, Davenport FM, McCollum RW, Hennessy AV, Klatskin G, Purcell RH. Nonhuman primate-associated viral hepatitis type A. Serologic evidence of hepatitis A virus infection. *JAMA* 1976;**236**(5):462-464.
100. Dienstag JL, Gust ID, Lucas CR, Wong DC, Purcell RH. Mussel-associated viral hepatitis, type A: serological confirmation. *Lancet* 1976;**1**(7959):561-563.
101. Dienstag JL, Krugman S, Wong DC, Purcell RH. Comparison of serological tests for antibody to hepatitis A antigen, using coded specimens from individuals infected with the MS-1 strain of hepatitis A virus. *Infect Immun* 1976;**14**(4):1000-1003.
102. Dienstag JL, Popper H, Purcell RH. The pathology of viral hepatitis types A and B in chimpanzees. A comparison. *Am J Pathol* 1976;**85**(1):131-148.
103. Dienstag JL, Purcell RH. Viral hepatitis, type A: etiology and epidemiology. *Rush-Presbyterian-St Luke's Medical Bulletin* 1976;**15**(2).
104. Dienstag JL, Schulman AN, Gerety RJ, Hoofnagle JH, Lorenz DE, Purcell RH, Barker LF. Hepatitis A antigen isolated from liver and stool: immunologic comparison of

- antisera prepared in guinea pigs. *J Immunol* 1976;**117**(3):876-881.
105. Dienstag JL, Wagner JA, Purcell RH, London WT, Lorenz DE. Virus-like particles and GB agent hepatitis. *Nature* 1976;**264**(5583):260-261.
  106. Dietz WH, Jr., Porcell O, Moon TE, Peters CJ, Purcell RH. IgM levels and IgM-mediated immune responses in patients with acute hepatitis A, acute hepatitis B and chronic HB antigenaemia. *Clin Exp Immunol* 1976;**23**(1):69-72.
  107. Gold JWM, Shih JW, Purcell RH, Gerin JL. Characterization of antibodies to the structural polypeptides of HGSAg: evidence for subtype-specific determinants. *J Immunol* 1976;**117**(4):1404-1406.
  108. Kapikian AZ, Dienstag JL, Purcell RH. Immune electron microscopy as a method for the detection, identification and characterization of agents not cultivable in an *in vitro* system. In Rose NR, Friedman H, eds. *Manual of Clinical Immunology*. Washington, DC: American Society for Microbiology 1976;467-480.
  109. Kaplan PM, Ford EC, Purcell RH, Gerin JL. Demonstration of subpopulations of Dane particles. *J Virol* 1976;**17**(3):885-893.
  110. Madden DL, Dietzman DE, Matthew EB, Sever JL, Lander JJ, Purcell RH, Rostafinski M, Mata A. Epidemiology of hepatitis B virus in an institution for mentally retarded persons. *Am J Ment Defic* 1976;**80**(4):369-375.
  111. Madden DL, Matthew EB, Dietzman DE, Purcell RH, Sever JL, Rostafinski M, Mata A. Hepatitis and Down's syndrome. *Am J Ment Defic* 1976;**80**(4):401-406.
  112. McAuliffe VJ, Purcell RH, Le Bouvier GL. Editorial: E: a third hepatitis B antigen? *N Engl J Med* 1976;**294**(14):779-780.
  113. Moritsugu Y, Dienstag JL, Valdesuso J, Wong DC, Wagner J, Routenberg JA, Purcell RH. Purification of hepatitis A antigen from feces and detection of antigen and antibody by immune adherence hemagglutination. *Infect Immun* 1976;**13**(3):898-908.
  114. Murphy BL, Peterson JM, Smith JL, Gitnick GL, Auslander MO, Berquist KR, Maynard JE, Purcell RH. Correlation between fluorescent antibody detection of hepatitis B core antigen in liver biopsies and the presence of e antigen in serum. *Infect Immun* 1976;**13**(1):296-297.
  115. Peters CJ, Purcell RH, Lander JJ, Johnson KM. Radioimmunoassay for antibody to hepatitis B surface antigen shows transmission of hepatitis B virus among household contacts. *J Infect Dis* 1976;**134**(3):218-223.
  116. Purcell RH, Alter HJ. Transfusion associated hepatitis in the United States. In Foundation JMR, ed, *Proceedings of the International Symposium on Hepatitis Viruses*, University of Tokyo Press, 1976:315-323.
  117. Purcell RH, Alter HJ, Dienstag JL. Non-A, non-B hepatitis. *Yale J Biol Med* 1976;**49**(3):243-250.
  118. Purcell RH, Dienstag JL. Experimental hepatitis A virus infection. In: Foundation JMR, ed., *Proceedings of the International Symposium on Hepatitis Viruses*, University of Tokyo Press, 1976:3-12.
  119. Purcell RH, Gerin JL. Status of hepatitis B vaccine development in the USA. In *Proceedings of the "First Joint Symposium on Blood Transfusion"*. Moscow, USSR 1976:147-153.
  120. Purcell RH, London WT, McAuliffe VJ, Palmer AE, Kaplan PM, Gerin JL, Wagner J, Popper H, Lvovsky E, Wong DC. Modification of chronic hepatitis-B virus infection in chimpanzees by administration of an interferon inducer. *Lancet* 1976;**2**(7989):757-761.

121. Purcell RH, Wong DC, Moritsugu Y, Dienstag JL, Routenberg JA, Boggs JD. A microtiter solid-phase radioimmunoassay for hepatitis A antigen and antibody. *J Immunol* 1976;**116**(2):349-356.
122. Schulman AN, Dienstag JL, Jackson DR, Hoofnagle JH, Gerety RJ, Purcell RH, Barker LF. Hepatitis A antigen particles in liver, bile, and stool of chimpanzees. *J Infect Dis* 1976;**134**(1):80-84.
123. Sever JL, Kapikian AZ, Feinstone S, Purcell RH, Gilkeson MR. Hepatitis A and Down's syndrome: lack of an association. *J Infect Dis* 1976;**134**(2):198-200.
124. Szmuness W, Dienstag JL, Purcell RH, Harley EJ, Stevens CE, Wong DC. Distribution of antibody to hepatitis a antigen in urban adult populations. *N Engl J Med* 1976;**295**(14):755-759.

# 1977

125. Alter HJ, Purcell RH, Gerin JL, London WT, Kaplan PM, McAuliffe VJ, Wagner J, Holland PV. Transmission of hepatitis B to chimpanzees by hepatitis B surface antigen-positive saliva and semen. *Infect Immun* 1977;**16**(3):928-933.
126. Arnold GH, Shih JW, Kaplan PM, Purcell RH, Gerin JL, Bueschenfelde KH. Expression of hepatitis B virus-specific markers in asymptomatic hepatitis B surface antigen carriers. *Infect Immun* 1977;**17**(3):550-554.
127. Barker LF, Dienstag JL, Lorenz DE, Purcell RH, Wong DC, Feinstone SM, Peterson MR, Rosen MW. Serologic and animal inoculation studies of a communal outbreak of viral hepatitis, type A. *Am J Med Sci* 1977;**274**(3):247-253.
128. Dienstag JL, Alaama A, Mosley JW, Redeker AG, Purcell RH. Etiology of sporadic hepatitis B surface antigen-negative hepatitis. *Ann Intern Med* 1977;**87**(1):1-6.
129. Dienstag JL, Purcell HR, Alter HJ, Feinstone SM, Wong DC, Holland PV. Non-A, non-B post-transfusion hepatitis. *Lancet* 1977;**1**(8011):560-562.
130. Dienstag JL, Purcell RH. Hepatitis A antigen: clinical implications. *Compr Ther* 1977;**3**(7):34-41.
131. Dienstag JL, Purcell RH. Recent advances in the identification of hepatitis viruses. *Postgrad Med J* 1977;**53**(621):364-373.
132. Dienstag JL, Purcell RH. Recenti progressi nell'identificazione dei virus della epatite. In: Casciani C, Capocaaccia L, Splendiani G, Ancarani E, eds, *Progressi in Epatologia*. Rome, Capozzi Editore, 1977:55-56.
133. Gust ID, Dienstag JL, Purcell RH, Lucas CR. Non-B hepatitis in Melbourne: a serological study of hepatitis A virus infection. *Br Med J* 1977;**1**(6055):193-195.
134. Hess G, Arnold W, Shih JWK, Kaplan PM, Purcell RH, Gerin JL, Meyer zum Buschenfelde KH. Expression of hepatitis B virus-specific markers in asymptomatic hepatitis B surface antigen carriers. *Infect Immun* 1977;**17**:550-554.
135. Hoofnagle JH, Gerety RJ, Tabor E, Feinstone SM, Barker LF, Purcell RH. Transmission of non-A, non-B hepatitis. *Ann Intern Med* 1977;**87**(1):14-20.
136. Kalica AR, Purcell RH, Sereno MM, Wyatt RG, Kim HW, Chanock RM, Kapikian AZ. A microtiter solid phase radioimmunoassay for detection of the human reovirus-like agent in stools. *J Immunol* 1977;**118**(4):1275-1279.
137. Mathiesen LR, Feinstone SM, Purcell RH, Wagner JA. Detection of hepatitis A antigen by immunofluorescence. *Infect Immun* 1977;**18**(2):524-530.
138. Meyers JD, Dienstag JL, Purcell RH, Thomas ED, Holmes KK. Parenterally transmitted non-A, non-B hepatitis: an epidemic reassessed. *Ann Intern Med* 1977;**87**(1):57-59.

139. Mosley JW, Redeker AG, Feinstone SM, Purcell RH. Multiple hepatitis viruses in multiple attacks of acute viral hepatitis. *N Engl J Med* 1977;**296**(2):75-78.
140. Peters CJ, Reeves WC, Purcell RH. Disparate response of monozygotic twins to hepatitis B virus infection. *J Pediatr* 1977;**91**(2):265-266.
141. Reys LL, Purcell RH, Holland PV, Alter HJ. The relationship between hepatitis B virus infection and hepatic cell carcinoma in Mozambique. *Trop Geogr Med* 1977;**29**(3):251-256.
142. Schaffner F, Dienstag JL, Purcell RH, Popper H. Chimpanzee livers after infection with human hepatitis viruses A and B: Ultrastructural studies. *Arch Pathol Lab Med* 1977;**101**(3):113-117.
143. Stevens CE, Cherubin CE, Dienstag JL, Purcell RH, Szmuness W. Antibody to hepatitis A antigen in children. *J Pediatr* 1977;**91**(3):436-438.
144. Szmuness W, Dienstag JL, Purcell RH, Prince AM, Stevens CE, Levine RW. Hepatitis type A and hemodialysis: a seroepidemiologic study in 15 U.S. centers. *Ann Intern Med* 1977;**87**(1):8-12.
145. Szmuness W, Dienstag JL, Purcell RH, Stevens CE, Wong DC, Ikram H, Bar-Shany S, Beasley RP, Desmyter J, Gaon JA. The prevalence of antibody to hepatitis A antigen in various parts of the world: a pilot study. *Am J Epidemiol* 1977;**106**(5):392-398.
146. Szmuness W, Purcell RH, Dienstag JL, Stevens CE. Antibody to hepatitis A antigen in institutionalized mentally retarded patients. *JAMA* 1977;**237**(16):1702-1705.
147. Whitney RA, Jr., Ganaway JR, Allen AM, Alter HJ, Purcell RH, Holland PV. Failure to transmit human viral hepatitis types A and B to the congenitally athymic nude mouse. *Lab Anim Sci* 1977;**27**(6):1031.

## 1978

148. Alter HJ, Purcell RH, Feinstone SM, Holland PV, Morrow AG. Non-A/non-B hepatitis: a review and interim report of an ongoing prospective study. In: Vyas GN, Cohen S, Schmid R, eds, *Viral hepatitis*. Philadelphia, Franklin Institute Press, 1978:359-369.
149. Alter HJ, Purcell RH, Holland PV, Popper H. Transmissible agent in non-A, non-B hepatitis. *Lancet* 1978;**1**(8062):459-463.
150. Arnold W, Hess G, Purcell RH, Kaplan PM, Gerin JL, Meyer KH. Anti-HBc, HBeAg and DNAPolymerase activity in healthy HBsAg carriers and patients with inflammatory liver diseases. *Klin Wochenschr* 1978;**56**(6):297-303.
151. Cherubin CE, Nair SR, Dienstag JL, Purcell RH, Szmuness W. Antibody to hepatitis A and B in children in New York City. *Pediatrics* 1978;**61**(5):781-783.
152. Dienstag JL, Mathiesen LR, Purcell RH. Test methods and animal models for HAV infection. In: Vya GN, Cohen SN, Schmid R, eds, *Viral hepatitis*. Philadelphia, Franklin Institute Press 1978:13-29.
153. Dienstag JL, Purcell RH. Hepatitis A virus. In: Hsuing GD, Green RH, eds, *CRC Handbook in Clinical Laboratory Science*. West Palm Beach, FL, CRC Press 1978 **Volume 1**:161-181.
154. Dienstag JL, Szmuness W, Stevens CE, Purcell RH. Hepatitis A virus infection: new insights from seroepidemiologic studies. *J Infect Dis* 1978;**137**(3):328-340.
155. Feinstone SM, Moritsugu Y, Shih JW, Gerin JL, Purcell RH. Characterization of HAV. In: Vyas GN, Cohen SN and Schmid R, eds, *Viral Hepatitis*. Philadelphia, PA, Franklin Institute Press 1978:41-48.
156. Feinstone SM, Purcell RH. Non-A, non-B hepatitis. *Annu Rev Med* 1978;**29**:359-366.

157. Feinstone SM, Purcell RH. Non-A, non-B hepatitis [editorial]. *JAMA* 1978;**240**(13):1384-1385.
158. Feinstone SM, Purcell RH and Barker LF. Hepatitis A and B. In: Lennette EH, Schmidt NH, eds, *Diagnostic Procedures for Viral and Rickettsial Infections*. New York, American Public Health Association, Inc. 1978:879-925.
159. Gerin JL, Wai-Kuo Shih J, McAuliffe VJ, Purcell RH. Antigens of hepatitis B virus: failure to detect HBeAg on the surfaces of HBsAg forms. *J Gen Virol* 1978;**38**(3):561-566.
160. Hess G, Arnold W, Meyer zum Buschenfelde KH, Purcell RH. [Anti-HBc titer in HBeAg(e-antigen) and anti-HBe(anti-e) positive asymptomatic hepatitis B surface antigen (HBsAg) carriers]. *Verh Dtsch Ges Inn Med* 1978;(84):943-945.
161. Hess G, Kaplan PM, Shih JW, Purcell RH, Arnold W, Gerin JL. [Subpopulations and subtypes of Dane particles]. *Verh Dtsch Ges Inn Med* 1978;(84):1069-1071.
162. Hess G, Wagner J, Arnold W, Purcell RH, Meyer zum Buschenfelde KH. Anti-HBc titers in HBeAg and anti-HBe positive asymptomatic HBsAg carriers. *Z Immunitätsforsch Immunobiol* 1978;**154**(3):208-217.
163. Mathiesen LR, Drucker J, Lorenz D, Wagner JA, Gerety RJ, Purcell RH. Localization of hepatitis A antigen in marmoset organs during acute infection with hepatitis A virus. *J Infect Dis* 1978;**138**(3):369-377.
164. Mathiesen LR, Feinstone SM, Purcell RH. Present methods for detection of hepatitis A antigen and antibody. *Acta Pathol et Microbiol Scand* 1978.
165. Mathiesen LR, Feinstone SM, Wong DC, Skinhoj P, Purcell RH. Enzyme-linked immunosorbent assay for detection of hepatitis A antigen in stool and antibody to hepatitis A antigen in sera: comparison with solid-phase radioimmunoassay, immune electron microscopy, and immune adherence hemagglutination assay. *J Clin Microbiol* 1978;**7**(2):184-193.
166. McAuliffe VJ, Purcell RH. Current status of tests for HBeAg and anti-HBe. In: Vyas GN, Cohen SN, Schmid R, eds, *Viral Hepatitis*. Philadelphia, PA, Franklin Institute Press 1978:161-172.
167. Murphy BL, Maynard JE, Bradley DW, Ebert JW, Mathiesen LR, Purcell RH. Immunofluorescence of hepatitis A virus antigen in chimpanzees. *Infect Immun* 1978;**21**(2):663-665.
168. Murphy B, Tabor E, McAuliffe V, Williams A, Maynard J, Gerety R, Purcell R. Third component, HBeAg/3, of hepatitis B e antigen system, identified by three different double-diffusion techniques. *J Clin Microbiol* 1978;**8**(3):349-350.
169. Purcell RH. The viral hepatitis. *Hospital Practice* 1978;**13**:51-63.
170. Purcell RH, Alter HJ. Transfusion associated hepatitis in the United States. In: Toshitsugu O, ed., *Hepatitis Viruses*. Tokyo, Japan, University of Tokyo Press 1978:315-322.
171. Purcell RH, Dienstag JL. Experimental hepatitis A virus infection. In: Toshitsugu O, ed, *Hepatitis Viruses*. Tokyo, Japan, University of Tokyo Press 1978:3-12.
172. Purcell RH, Feinstone SM, Alter HJ, Wong DC. Detection of a novel antigen in two cases of non-A non-B hepatitis, a recently recognized persistent infection of probable viral origin. In: Stevens JG, Todaro GJ, Fox CF, eds, *Persistent Viruses*. New York, NY, Academic Press 1978:535-549.
173. Purcell RH, Gerin JL. Hepatitis B vaccines: a review of progress. *Acta Pathol Microbiol*

*Scand* 1978.

174. Purcell RH, Gerin JL. Hepatitis B vaccines: a status report. In: Vyas GN, Cohen SN, Schmid R, eds, *Viral Hepatitis*. Philadelphia, PA, Franklin Institute Press 1978:491-506.
175. Purcell RH, Gerin JL. Hepatitis B vaccines. On the threshold. *Am J Clin Pathol* 1978;**70**(1 Suppl):159-169.
176. Seeff LB, Wright EC, Zimmerman HJ, Alter HJ, Dietz AA, Felsher BF, Finkelstein JD, GarciaPont P, Gerin JL, Greenlee HB. Type B hepatitis after needle-stick exposure: prevention with hepatitis B immune globulin. *Ann Intern Med* 1978;**88**:285-293.
177. Shimizu YK, Mathiesen LR, Lorenz D, Drucker J, Feinstone SM, Wagner JA, Purcell RH. Localization of hepatitis A antigen in liver tissue by peroxidase-conjugated antibody method: light and electron microscopic studies. *J Immunol* 1978;**121**(5):1671-1679.
178. Smith D, Gribble TJ, Yeager AS, Greenberg HB, Purcell RH, Robinson W, Schwartz HC. Spontaneous resolution of severe aplastic anemia associated with viral hepatitis A in a 6-year-old child. *Am J Hematol* 1978;**5**(3):247-252.
179. Stevens CE, Silbert JA, Miller DR, Dienstag JL, Purcell RH, Szmuness W. Serologic evidence of hepatitis A and B virus infections in thalassemia patients: a retrospective study. *Transfusion* 1978;**18**(3):356-360.
180. Taylor-Robinson D, Purcell RH, London WT, Sly DL. Urethral infection of chimpanzees by *Ureaplasma urealyticum*. *J Med Microbiol* 1978;**11**(2):197-201.
181. Ziegler JL, Adamson RH, Barker LF, Fraumeni JF, Jr, Gerin J, Purcell RH. International workshop on hepatitis B and liver cancer: special report. *J Natl Cancer Inst* 1978;**60**:717.

## 1979

182. Berman M, Alter HJ, Ishak KG, Purcell RH, Jones EA. The chronic sequelae of non-A, non-B hepatitis. *Ann Intern Med* 1979;**91**(1):1-6.
183. Dienstag JL, Bhan AK, Alter HJ, Feinstone SM, Purcell RH. Circulating immune complexes in non-A, non-B hepatitis. Possible masking of viral antigen. *Lancet* 1979;**1**(8129):1265-1267.
184. Galbraith RM, Dienstag JL, Purcell RH, Gower PH, Zuckerman AJ, Williams R. Non-A non-B hepatitis associated with chronic liver disease in a haemodialysis unit. *Lancet* 1979;**1**(8123):951-953.
185. Gerety RJ, Tabor E, Purcell RH, Tyeryar FJ, Wong DC, Purcell RH, Rosen L. Summary of an international workshop on hepatitis B vaccines. Prevalence of antibody to hepatitis A and hepatitis B viruses in selected populations of the South Pacific. *J Infect Dis* 1979;**140**(4):642-648.
186. Hansson BG, Purcell RH. Sites that bind polymerized albumin on hepatitis B surface antigen particles: detection by radioimmunoassay. *Infect Immun* 1979;**26**(1):125-130.
187. Mathiesen LR, Skinhoj P, Hardt F, Nielsen JO, Sloth K, Zoffmann H, Moller AM, Wong D, Purcell RH, Programme tCHA. Epidemiology and clinical characteristics of acute hepatitis types A, B, and non-A non-B. *Scand J Gastroenterol* 1979;**14**(7):849-856.
188. Purcell RH, Donovan ML. What you should know about viral hepatitis. *Pharmacy Times* 1979;48-53.
189. Rizzetto M, Shih JW, Gocke DJ, Purcell RH, Verme G, Gerin JL. Incidence and significance of antibodies to delta antigen in hepatitis B virus infection. *Lancet* 1979;**2**(8150):986-990.
190. Routenberg JA, Dienstag JL, Harrison WO, Kilpatrick ME, Hooper RR, Chisari FV,



- Purcell RH, Fornes MF. Foodborne outbreak of hepatitis A: clinical and laboratory features of acute and protracted illness. *Am J Med Sci* 1979;**278**:123-137.
191. Shimizu YH, Feinstone SM, Purcell RH, Alter HJ, London WT. Non-A, non-B hepatitis: ultrastructural evidence for two agents in experimentally infected chimpanzees. *Science* 1979;**205**:197-200.
  192. Sly DL, London WT, Purcell RH, Routenberg JA, Dienstag JL, Harrison WO, Kilpatrick ME, Hooper RR, Chisari FV, Purcell RH. Illness in a chimpanzee inoculated with hepatitis B virus. Foodborne outbreak of hepatitis A: clinical and laboratory features of acute and protracted illness. *J Am Vet Med Assoc* 1979;**175**(9):987-988.
  193. Wankya BM, Hansen DP, Ngindu AM, Feinstone SF, Purcell RH. Seroepidemiology of hepatitis A and B in Kenya. A rural population survey in Machakos District. *East Afr Med J* 1979;**56**(3):134-138.
  194. Wong DC, Purcell RH, Rosen L. Prevalence of antibody to hepatitis A and hepatitis B viruses in selected populations of the South Pacific. *Am J Epidemiol* 1979;**110**:227-236.

## 1980

195. Alter HJ, Holland PV, Purcell RH. Current status of posttransfusion hepatitis. *Pathobiol Annual* 1980;**10**:135-156.
196. Daemer RJ, Feinstone SM, Alexander JJ, Tully JG, London WT, Wong DC, Purcell RH. PLC/PRF/5 (Alexander) hepatoma cell line: further characterization and studies of infectivity. *Infect Immun* 1980;**30**(2):607-611.
197. Feinstone SM, Purcell RH, Mathiesen LR, Hardt F, Dietrichson O, Purcell RH, Wong D, Skinhoj P, Nielsen JO, Zoffmann H. New methods for the serodiagnosis of hepatitis A. The role of acute hepatitis type A, B, and non-A non-B in the development of chronic active liver disease. *Gastroenterology* 1980;**78**(5 Pt 1):1092-1094.
198. Gust ID, Feinstone SM, Purcell RH, Alter HJ. Detection of antibodies to single-stranded DNA in naturally acquired and experimentally induced viral hepatitis. *J Med Virol* 1980;**6**(1):1-10.
199. Holland P, Golosova T, Szmunes W, Ketiladze E, Purcell R, Budnitskaya P, Gerety R, Vorozhbieva T, Harley E, Burlev V. Viral hepatitis markers in Soviet and American blood donors. *Transfusion* 1980;**20**(5):504-510.
200. Kapikian AZ, Dienstag JL, Purcell RH. Immune electron microscopy as a method for the detection, identification, and characterization of agents not cultivable in an *in vitro* system. In: Rose NR, Friedman H, eds., *Manual of Clinical Immunology*, 2nd Ed. Washington, DC, American Society for Microbiology, 1980;70-83.
201. Mathiesen LR, Hardt F, Dietrichson O, Purcell RH, Wong D, Skinhoj P, Nielsen JO, Zoffmann H, Iversen K. The role of acute hepatitis type A, B, and non-A non-B in the development of chronic active liver disease. *Scand J Gastroenterol* 1980;**15**(1):49-54.
202. Mathiesen LR, Moller AM, Purcell RH, London WT, Feinstone SM. Hepatitis A virus in the liver and intestine of marmosets after oral inoculation. *Infect Immun* 1980;**28**(1):45-48.
203. Mathiesen LR, Papaevangelou G, Purcell RH, Grammatikopoulos D, Contoyannis P, Wong D. Etiological characterization of hepatitis B surface antigen-negative hepatitis among adult patients in Athens, Greece. *J Clin Microbiol* 1980; **11**(3):297-300.
204. Mathiesen LR, Skinoj P, Nielsen JO, Purcell RH, Wong D, Ranek L. Hepatitis type A, B, and non-A non-B in fulminant hepatitis. *Gut* 1980;**21**(1):72-77.
205. McAuliffe VJ, Purcell RH, Gerin JL. Type B hepatitis: a review of current prospects for

- a safe and effective vaccine. *Rev Infect Dis* 1980;2(3):470-492.
206. Popper H, Dienstag JL, Feinstone SM, Alter HJ, Purcell RH. Lessons from the pathology of viral hepatitis in chimpanzees. In: Bianchi L, Gerok W, Sickinger K, Stalder GA, eds, *Virus and the Liver*. Lancaster, PA, MTP Press 1980:137-150.
  207. Popper H, Dienstag JL, Feinstone SM, Alter HJ, Purcell RH. The pathology of viral hepatitis in chimpanzees. *Virchows Arch [Pathol Anat]* 1980;387(1):91-106.
  208. Purcell RH. Viral Hepatitis: some unanswered questions and unfinished business. In: Bianchi L, Gerok W, Sickinger K, Stalder GA, eds, *Virus and the Liver*. Lancaster, PA, MTP Press 1980:75-82.
  209. Rizzetto M, Canese MG, Gerin JL, London WT, Sly DL, Purcell RH. Transmission of the hepatitis B virus-associated delta antigen to chimpanzees. *J Infect Dis* 1980;141(5):590-602.
  210. Rizzetto M, Hoyer B, Canese MG, Shih JW, Purcell RH, Gerin JL. Delta Agent: association of delta antigen with hepatitis B surface antigen and RNA in serum of delta-infected chimpanzees. *PNAS USA* 1980;77(10):6124-6128.
  211. Rizzetto M, Purcell RH, Gerin JL. Epidemiology of HBV-associated delta agent: geographical distribution of anti-delta and prevalence in polytransfused HBsAg carriers. *Lancet* 1980;1(8180):1215-1218.
  212. Wong DC, Purcell RH, Sreenivasan MA, Prasad SR, Pavri KM. Epidemic and endemic hepatitis in India: evidence for a non-A, non-B hepatitis virus aetiology. *Lancet* 1980;2(8200):876-879.

## 1981

213. Alter HJ, Purcell RH, Holland PV, Alling DW, Koziol DE. Donor transaminase and recipient hepatitis. Impact on blood transfusion services. *JAMA* 1981;246(6):630-634.
214. Bonino F, Hoyer B, Ford E, Shih JW, Purcell RH, Gerin JL. The delta agent: HBsAg particles with delta antigen and RNA in the serum of an HBV carrier. *Hepatology* 1981;1(2):127-131.
215. Daemer RJ, Feinstone SM, Gust ID, Purcell RH. Propagation of human hepatitis A virus in African green monkey kidney cell culture: primary isolation and serial passage. *Infect Immun* 1981;32(1):388-393.
216. Dienes HP, Popper H, Purcell RH, Bonino F, Ponzetto A. [Simultaneous inoculation of hepatitis B virus and non-A non-B agents on a chimpanzee: histopathology in relation to electron microscopic and immunologic findings.] *Verh Dtsch Ges Pathol* 1981;65(6):91-95.
217. Dienstag JL, Krotoski WA, Howard WA, Purcell RH, Neva FA, Galambos JT, Glew RH. Non-A, non-B hepatitis after experimental transmission of malaria by inoculation of blood. *J Infect Dis* 1981;143(2):200-209.
218. Feinstone SM, Alter HJ, Dienes HP, Shimizu Y, Popper H, Blackmore D, Sly D, London WT, Purcell RH. Non-A, non-B hepatitis in chimpanzees and marmosets. *J Infect Dis* 1981;144(6):588-598.
219. Hansson BG, Calhoun JK, Wong DC, Feinstone SM, Purcell RH, Pannuti CS, Pereira JL, Koff RS, Dienstag JL, Iwarson S. Serodiagnosis of viral hepatitis A by a solid-phase radioimmunoassay specific for IgM antibodies. *Scand J Infect Dis* 1981;13(1):5-9.
220. Krugman S, McAuliffe VJ, Purcell RH, Thung SN, Gerber MA, Purcell RH, London WT, Mihalik KB, Popper H. Hepatitis B vaccines: present status. Animal model of human disease. Chimpanzee carriers of hepatitis B virus. Chimpanzee hepatitis B

- carriers. *Semin Liver Dis* 1981;1(1):81-87.
221. Popper H, Shih JW, Gerin JL, Wong DC, Hoyer BH, London WT, Sly DL, Purcell RH. Woodchuck hepatitis and hepatocellular carcinoma: correlation of histologic with virologic observations. *Hepatology* 1981;1(2):91-98.
  222. Rizzetto M, Canese MG, Purcell RH, London WT, Sly LD, Gerin JL. Experimental HBV and delta infections of chimpanzees: occurrence and significance of intrahepatic immune complexes of HBcAg and delta antigen. *Hepatology* 1981;1(6):567-574.
  223. Rizzetto M, Gerin J, Purcell RH. Delta Antigen: evidence for a variant of hepatitis B virus or a non-A, non-B hepatitis agent? *Perspectives in Virology* 1981;XI:195-217.
  224. Taylor-Robinson D, Purcell RH, London WT, Sly DL, Thomas BJ, Evans RT. Microbiological, serological, and histopathological features of experimental Chlamydia trachomatis urethritis in chimpanzees. *Br J Vener Dis* 1981;57(1):36-40.
  225. Thung SN, Gerber MS, Purcell RH, London WT, Mihalik KB, Popper H. Animal model of human disease. Chimpanzee carriers of hepatitis B virus. *Am J Pathol* 1981;105(3):328-332.

## 1982

226. Alter HJ, Purcell RH, Feinstone SM, Tegtmeier GE. Non-A, non-B hepatitis: its relationship to cytomegalovirus, to chronic hepatitis, and to direct and indirect test methods. In: Szmuness W, Alter HJ, Maynard JE, eds, *Viral Hepatitis: 1981 International Symposium*. Philadelphia, PA, The Franklin Institute Press, 1982 :279-294.
227. Chen DS, Hoyer BH, Nelson J, Purcell RH, Gerin JL. Detection and properties of hepatitis B viral DNA in liver tissues from patients with hepatocellular carcinoma. *Hepatology* 1982;2:42S-46S.
228. Feinstone SM, Alter HJ, Dienes HP, Shimizu Y, Popper H, Blackmore D, Sly DL, London WT, Purcell RH. Studies on non-A, non-B hepatitis in chimpanzees and marmosets. In: Szmuness W, Alter HJ, Maynard JE, eds, *Viral Hepatitis: 1981 International Symposium*. Philadelphia, PA, The Franklin Institute Press, 1982:295-304.
229. Koff RS, Pannuti CS, Pereira ML, Hansson BG, Dienstag JL, Neto VA, Wong DC, Purcell RH. Hepatitis A and non-A, non-B viral hepatitis in Sao Paulo, Brazil: epidemiological, clinical and laboratory comparisons in hospitalized patients. *Hepatology* 1982;2(4):445-448.
230. McAuliffe VJ, Purcell RH, Gerin JL, Tyeryar FJ. Current status of the NIAID hepatitis B vaccines. In: Szmuness W, Alter HJ, Maynard JE, eds, *Viral Hepatitis: 1981 International Symposium*. Philadelphia, PA, The Franklin Institute Press, 1982:425-435.
231. Mitamura K, Hoyer BH, Ponzetto A, Nelson J, Purcell RH, Gerin JL. Woodchuck hepatitis virus DNA in woodchuck liver tissues. *Hepatology* 1982;2:47S-50S.
232. Purcell RH. The hepatitis viruses: an overview and historical perspective. *Viral Hepatitis: 1981 International Symposium*, Philadelphia, PA, The Franklin Institute Press 1982:3-12
233. Wong DC, Shih JW, Purcell RH, Gerin JL, London WT. Natural and experimental infection of woodchucks with woodchuck hepatitis virus, as measured by new, specific assays for woodchuck surface antigen and antibody. *J Clin Microbiol* 1982;15(3):484-490.

## 1983

234. Feinstone SM, Daemer RJ, Gust ID, Purcell RH. Live attenuated vaccine for hepatitis A. Proceedings of Second WHO/IABS Symposium on Viral Hepatitis: Standardization in Immunoprophylaxis of Infections by Hepatitis Viruses, Athens, Greece. 1982. In: S K,

- ed., *Dev Biol Stand* 1983;54:429-432.
235. Feinstone SM, Mihalik KB, Kamimura T, Alter HJ, London WT, Purcell RH. Inactivation of hepatitis B virus and non-A, non-B hepatitis by chloroform. *Infect Immun* 1983;41(2):816-821.
236. Feinstone SM, Purcell RH. Evidence for non-A, non-B viruses. International Symposium on Viral Hepatitis, Turin, Italy, 1983. In: Verme G, Bonino F, Rizzetto M, eds, *Prog Clin Biol Res: Vol. 143: Viral Hepatitis and Delta Infection*. New York, Alan R. Liss, Inc. 1983:29-39.
237. Flores J, Boeggeman E, Purcell RH, Sereno M, Perez I, White L, Wyatt RG, Chanock RM and Kapikian AZ. Adot hybridization assay for detection of rotavirus. *Lancet* 1983;1:555-559.
238. Flores J, Sereno M, Lai C-J, Boeggeman E, Perez I, Purcell R, Kalica A, Greenberg H, Wyatt R, Hansen J. Use of single-stranded rotavirus RNA transcripts for the diagnosis of rotavirus infection, the study of genetic diversity among rotavirus, and the molecular cloning of rotavirus genes. *Double-Stranded RNA Viruses* 1983;115-127.
239. Gerin JL, Alexander H, Shih JW, Purcell RH, Dapolito G, Engle R, Green N, Sutcliffe JG, Shinnick TM, Lerner RA. Chemically synthesized peptides of hepatitis B surface antigen duplicate the d/y specificities and induce subtype-specific antibodies in chimpanzees. *PNAS USA* 1983;80(8):2365-2369.
240. Gerin JL, Lerner RA, Purcell RH. Alternative sources of hepatitis B vaccine. Proceedings of Second WHO/IABS Symposium on Viral Hepatitis: Standardization in Immunoprophylaxis of Infections by Hepatitis Viruses, Athens, Greece, 1982. In: Karger S, ed, *Dev Biol Stand*, 1983 54:135-137.
241. Gerin JL, Purcell RH, Gerin JL, Lerner RA, Purcell RH. New approaches to hepatitis B vaccines. Alternative sources of hepatitis B vaccine. In: Verme G, Bonino F, Rizzetto M, eds, *Prog Clin Biol Res. Vol. 143: Viral Hepatitis and Delta Infection*. New York, Alan R. Liss, Inc. 1983:369-377.
242. Gerin JL, Tennant BC, Ponzetto A, Purcell RH, Tyeryar FJ. The woodchuck animal model of hepatitis B-like virus infection and disease. In: Verme G, Bonino F, Rizzetto M, eds, *Prog Clin Biol Res. Vol. 143 Viral Hepatitis and Delta Infection*. New York, Alan R. Liss, Inc. 1983:23-28.
243. Hadler SC, de Monzon M, Ponzetto A, de Marquez R, Angola E, Mondolfi A, Bracho A, Popper H, Gerin J, Purcell RH. Severe outbreak of hepatitis in Venezuela due to delta infection. In: Overby LR, Deinhardt F, Deinhardt J, eds, *Viral Hepatitis. Second International Max von Pettenkofer Symposium*. New York, Marcel Dekker 1983:167-168.
244. Hadler SC, Popper H, Purcell RH, Ponzetto A, Gerber MA, Thung SN, de Monzon M, Rivera D, Bracho A, Anzola E. Morphologic evolution of frequently fatal delta agent infection in Venezuelan indians. In Verme G, Bonino F, Rizzetto M, eds, *Prog Clin Biol Res, Vol. 143: Viral Hepatitis and Delta Infection*: New York, Alan R. Liss, Inc. 1983:177-179.
245. Hoyer B, Bonino F, Ponzetto A, Denniston K, Nelson J, Purcell R, Gerin JL. Properties of delta-associated ribonucleic acid. International Symposium on Viral Hepatitis, Turin, Italy, 1983. In: Verme G BF, Rizzetto M, eds., *Prog Clin Biol Res, Vol. 143: Viral Hepatitis and Delta Infection..* New York, Alan R. Liss, Inc. 1983:91-97.
246. Kamimura T, Ponzetto A, Bonino F, Feinstone SM, Gerin JL, Purcell RH. Cytoplasmic tubular structures in liver of HBsAg carrier chimpanzees infected with delta agent and

- comparison with cytoplasmic structures in non-A, non-B hepatitis. *Hepatology* 1983;**3**(5):631-637.
247. Minuk GY, Hoofnagle JH, McAuliffe VJ, Purcell RH. IgM antibody responses to hepatitis B surface antigen in recipients of hepatitis B virus vaccine. *J Infect Dis* 1983;**148**(2):330.
  248. Mortimer PP, Humphries RK, Moore JG, Purcell RH, Young NS. A human parvovirus-like virus inhibits haematopoietic colony formation in vitro. *Nature* 1983;**302**(5907):426-429.
  249. Palla M, Rizzi R, Toti M, Almi P, Rizzetto M, Bonino F, Purcell R. Complexes of hepatitis B surface antigen and immunoglobulin M in the sera of patients with hepatitis B virus infection. *Infect Immun* 1983;**41**(3):950-958.
  250. Ponzetto A, Purcell RH, Gerin JL. Experimental transmission of the delta agent to the eastern woodchuck (*Marmota monax*). International Symposium on Viral Hepatitis, Turin, Italy, 1983. In: Verme G, Bonino F and Rizzetto M, eds, *Prog Clin Biol Res, Vol. 143: Viral Hepatitis and Delta Infection*. New York, Alan R. Liss, Inc. 1983:107-112.
  251. Popper H, Thung SN, Gerber MA, Hadler SC, de Monzon M, Ponzetto A, Anzola E, Rivera D, Mondolfi A, Bracho A. Histologic studies of severe delta agent infection in Venezuelan Indians. *Hepatology* 1983;**3**:906-912.
  252. Purcell RH. Viral hepatitis in primates, woodchucks and selected other species. *Proceedings of the Annual Meeting of the American Association of Zoo Veterinarians*, 1982. 1983:39-40
  253. Purcell RH, Gerin JL. Epidemiology of the delta agent: an introduction. International Symposium on Viral Hepatitis, Turin, Italy, 1983. In: Verme G, Bonino F, Rizzetto M, eds, *Prog Clin Biol Res: Vol. 143: Viral Hepatitis and Delta Infection*. New York, Alan R. Liss, Inc. 1983:113-119.
  254. Purcell RH, Gerin JL, Rizzetto M, Ponzetto A, Bonino F, London WT. Experimental transmission of the delta agent to chimpanzees. International Symposium on Viral Hepatitis, Turin, Italy, 1983. In: Verme G, Bonino F, Rizzetto M, eds, *Prog Clin Biol Res: Vol. 143: Viral Hepatitis and Delta Infection*. New York, Alan R. Liss, Inc. 1983:79-89.
  255. Purcell RH, Pavri K, Dienes H, Kamimura T, Popper H. Epidemic non-A, non-B hepatitis. In: Overby LR, Deinhardt F, Deinhardt J, eds, *Proceedings Second International Max von Pettenkofer Symposium on Viral Hepatitis*. New York, Marcell Dekker, 1983:31-33.
  256. Rizzetto M, Bonino F, Verme B, Purcell RH, Gerin JL. Nomenclature: a proposal to designate the delta agent as hepatitis D virus. International Symposium on Viral Hepatitis, Turin, Italy, 1983. In: Verme G, Bonino F, Rizzetto M, eds, *Prog Clin Biol Res Vol. 143: Viral Hepatitis and Delta Infection*. New York, Alan R. Liss, Inc. 1983:XX-XXI.
  257. Rizzetto M, Canese MG, Gerin JL, Purcell RH. The delta agent. In: Overby LR, Deinhardt F and Deinhardt J, eds, *Proceedings Second International Symposium on Viral Hepatitis*. New York, Marcell Dekker, 1983:49-51.
  258. Shinnick TM, Sutcliffe JG, Gerin JL, Purcell RH, Bittle JL, Alexander H, Rowlands DJ, Brown F, Lerner RA. The chemical nature of antiviral serotype specificity. In: *Publication #3176-IMM*. La Jolla, CA, Research Institute of Scripps Clinic 1983:343-353.

259. Tabor E, Purcell RH, Gerety RJ. Primate animal models and titered inocula for the study of human hepatitis A, hepatitis B, and non-A, non-B hepatitis. *J Med Primatol* 1983;**12**(6):305-318.
260. Tabor E, Purcell RH, London WT, Gerety RJ. Use of and interpretation of results using inocula of hepatitis B virus with known infectivity titers. *J Infect Dis* 1983;**147**(3):531-534.
261. Ticehurst JR, Racaniello VR, Baroudy BM, Baltimore D, Purcell RH, Feinstone SM. Molecular cloning and characterization of hepatitis A virus cDNA. *PNAS USA* 1983;**80**(19):5885-5889.
262. Wen YM, Mitamura K, Johnson R, Purcell RH. Hepatitis B virus and primary liver cell carcinoma. In: Overby LR, Deinhardt F, Deinhardt J, eds, *Proceedings of Second International Symposium on Viral Hepatitis*. New York, Marcel Dekker 1983:197-200.
263. Wen YM, Mitamura K, Merchant B, Tang ZY, Purcell RH. Nuclear antigen detected in hepatoma cell lines containing integrated hepatitis B virus DNA. *Infect Immun* 1983;**39**(3):1361-1367.

#### 1984

264. Bonino F, Hoyer B, Shih JW, Rizzetto M, Purcell RH, Gerin JL. Delta hepatitis agent: structural and antigenic properties of the delta-associated particle. *Infect Immun* 1984;**43**(3):1000-1005.
265. Canese MG, Rizzetto M, Novara R, London WT, Purcell RH. Experimental infection of chimpanzees with the HBsAg-associated delta (delta) agent: an ultrastructural study. *J Med Virol* 1984;**13**(1):63-72.
266. Cupps TR, Gerin JL, Purcell RH, Goldsmith PK, Fauci AS. *In vitro* antigen-induced antibody responses to hepatitis B surface antigen in man. Kinetic and cellular requirements. *J Clin Invest* 1984;**74**(4):1204-1213.
267. Cupps TR, Goldsmith PK, Volkman DJ, Gerin JL, Purcell RH, Fauci AS. Activation of human peripheral blood B cells following immunization with hepatitis B surface antigen vaccine. *Cell Immunol* 1984;**86**(1):145-154.
268. Gerin J, Purcell R, Lerner R. Recombinant DNA and synthetic peptide approaches to HBV vaccine development: immunogenicity and protective efficacy in chimpanzees. Cold Spring Harbor Conference, 1983. In: Chanock RM, Lerner RA, eds, *Modern Approaches to Vaccines: Molecular and Chemical Basis of Virus Virulence and Immunogenicity*. New York, Cold Spring Harbor Laboratory 1984:121-125.
269. Hadler SC, De Monzon M, Ponzetto A, Anzola E, Rivero D, Mondolfi A, Bracho A, Francis DP, Gerber MA, Thung S, Gerin J, Maynard JE, Popper H, Purcell RH. Delta virus infection and severe hepatitis. An epidemic in the Yucpa Indians of Venezuela. *Ann Intern Med* 1984;**100**(3):339-344.
270. Hanson RG, Hoofnagle JH, Minuk GY, Purcell RH, Gerin JL. Cell-mediated immunity to hepatitis B surface antigen in man. *Clin Exp Immunol* 1984;**57**(2):257-264.
271. Moss B, Smith GL, Gerin JL, Purcell RH. Live recombinant vaccinia virus protects chimpanzees against hepatitis B. *Nature* 1984;**311**(5981):67-69.
272. Moss B, Smith GL, Gerin JL, Purcell RH. Use of vaccinia virus as a vector for the construction of live recombinant hepatitis B virus vaccines. Proceedings 1984 Viral Hepatitis Symposium, San Francisco, California, March 8-10, 1984. In: Vyas GN, Dienstag J, Hoofnagle J, eds, *Viral Hepatitis and Liver Disease*. Orlando, FL, Grune & Stratton 1984:293-305.

273. Ponzetto A, Cote PJ, Ford EC, Purcell RH, Gerin JL. Core antigen and antibody in woodchucks after infection with woodchuck hepatitis virus. *J Virol* 1984;**52**(1):70-76.
274. Ponzetto A, Cote PJ, Popper H, Hoyer BH, London WT, Ford EC, Bonino F, Purcell RH, Gerin JL. Transmission of the hepatitis B virus-associated delta agent to the eastern woodchuck. *PNAS USA* 1984;**81**(7):2208-2212.
275. Ponzetto A, Seeff LB, Buskell-Bales Z, Ishak KG, Hoofnagle JH, Zimmerman HJ, Purcell RH, Gerin JL. Hepatitis B markers in United States drug addicts with special emphasis on the delta hepatitis virus. *Hepatology* 1984;**4**(6):1111-1115.
276. Purcell RH, Feinstone SM, Daemer RJ, Ticehurst JR, Baroudy BM. Approaches to the development of hepatitis-A vaccines: the old and the new. Cold Spring Harbor Conference, 1983. In: Chanock RM, Lerner RA, eds, *Modern Approaches to Vaccines: Molecular and Chemical Basis of Virus Virulence and Immunogenicity*. New York, Cold Spring Harbor Laboratory 1984:59-63.
277. Purcell RH, Feinstone SM, Ticehurst JR, Daemer RJ and Baroudy BM. Hepatitis A virus. Proceedings 1984 Viral Hepatitis Symposium, San Francisco, California, March 8-10, 1984. In: Vyas GN, Dienstag J, Hoofnagle J, eds, *Viral Hepatitis and Liver Disease*. Orlando, FL, Grune & Stratton 1984:9-22.
278. Purcell RH, Gerin JL. Hepatitis vaccines: a status report. Proceedings 1983 Vienna Hepatitis Symposium. In: Brunner H, Thaler H, eds, *Hepatology: A Festschrift for Hans Popper*. New York, Raven Press 1984:145-152.
279. Purcell RH, Rizzetto M, Gerin JL. Hepatitis delta virus infection of the liver. *Semin Liver Dis* 1984;**4**(4):340-346.
280. Rizzetto M, Hoyer BH, Purcell RH, Gerin JL. Hepatitis delta virus infection. Proceedings 1984 Viral Hepatitis Symposium, San Francisco, California, March 8-10, 1984. In: Vyas GN, Dienstag J, Hoofnagle J, eds, *Viral Hepatitis and Liver Disease*. Orlando, FL, Grune & Stratton 1984:371-379.
281. Xu ZY, Liu CB, Francis DP, Purcell RH. Prevention of hepatitis B virus carriage of infants using HBV vaccine-preliminary report of a randomized double-blind placebo controlled trial. *Chin J Infect Dis* 1984;**823**:149-152.
282. Zachoval R, Dienstag JL, Purcell RH. Tests for hepatitis A virus antigen and antibody. In: Gerety RJ, ed, *Hepatitis A*. San Diego, Academic Press 1984:33-46.

## 1985

283. Baroudy BM, Ticehurst JR, Miele TA, Maizel JV, Jr, Purcell RH, Feinstone SM. Sequence analysis of hepatitis A virus cDNA coding for capsid proteins and RNA polymerase. *PNAS USA* 1985;**82**(7):2143-2147.
284. Baroudy BM, Ticehurst JR, Miele TA, Maizel JV, Purcell RH, Feinstone SM. Sequence analysis of the hepatitis-A virus cDNA coding for the RNA polymerase and capsid region and its potential for vaccine development. Cold Spring Harbor Conference 1984. In: Lerner R, Brown F, Chanock R, eds, *Vaccines 85: Modern Approaches to Vaccines: Molecular and Chemical Basis of Resistance to Viral, Bacterial and Parasitic Disease*. New York, Cold Spring Harbor Laboratory 1985:249-254.
285. Flores J, Perez-Schael I, Boeggeman E, White L, Perez M, Purcell R, Hoshino Y, Midthun K, Chanock RM, Kapikian AZ. Genetic relatedness among human rotaviruses. *J Med Virol* 1985;**17**(2):135-143.
286. Gerin JL, Purcell RH, Lerner RA. Use of synthetic peptides to identify protective epitopes of the hepatitis-B surface antigen. In Lerner R, Brown F, Chanock R, eds,

- Vaccines 85: Modern Approaches to Vaccines: Molecular and Chemical Basis of Resistance to Viral, Bacterial, and Parasitic Diseases.* New York, Cold Spring Harbor Laboratory 1985:235-239.
287. Kiyosawa K, Daemer RJ, He LF, Bonino F, Prozesky OW, Purcell RH. The spectrum of complement-fixing antinuclear antibodies in patients with hepatocellular carcinoma. *Hepatology* 1985;5:548-555.
  288. Ljunggren KE, Patarroyo ME, Engle R, Purcell RH, Gerin JL. Viral hepatitis in Colombia: a study of the "hepatitis of the Sierra Nevada de Santa Marta." *Hepatology* 1985;5(2):299-304.
  289. Ponzetto A, Cote PJ, Ford EC, Engle R, Cicmanec J, Shapiro M, Purcell RH, Gerin JL. Radioimmunoassay and characterization of woodchuck hepatitis virus core antigen and antibody. *Virus Res* 1985;2(4):301-315.
  290. Prince AM, Brotman B, Purcell RH, Gerin JL. A final report on safety and immunogenicity of a bivalent aqueous subunit HBV vaccine. *J Med Virol* 1985;15(4):399-419.
  291. Purcell RH. Hepatitis B: a scientific success story (almost). In: Dodd RY, ed, *Prog Clin Biol Res.* Vol. 182: *Infection, Immunity and Blood Transfusion.* New York: Alan R. Liss, Inc. 1985:11-43.
  292. Purcell RH, Gerin JL. Prospects for second and third generation hepatitis B vaccines. *Hepatology* 1985;5(1):159-163.
  293. Purcell RH, Gerin JL, Popper H, London WT, Cicmanec J, Eichberg JW, Newman J, Hrinda ME. Hepatitis B virus, hepatitis non-A, non-B virus and hepatitis delta virus in lyophilized antihemophilic factor: relative sensitivity to heat. *Hepatology* 1985;5(6):1091-1099.
  294. Shiels MT, Czaja AJ, Taswell HF, Gerin JL, Purcell RH, Ludwig J, Rakela J, Nelson CA. Frequency and significance of delta antibody in acute and chronic hepatitis B. A United States experience. *Gastroenterology* 1985;89(6):1230-1234.
  295. Shiraishi H, Alter HJ, Feinstone SM, Purcell RH. Rheumatoid factor-like reactants in sera proven to transmit non-A, non-B hepatitis: a potential source of false-positive reactions in non-A, non-B assays. *Hepatology* 1985;5(2):181-187.
  296. Shiraishi H, Wong D, Purcell RH, Shirachi R, Kumasaka E, Numazaki Y. Antibody to human parvovirus in outbreak of erythema infectiosum in Japan [letter]. *Lancet* 1985;1(8435):982-983.
  297. Tassopoulos N, Papaevangelou G, Roumeliotou-Karayannis A, Kalafatas P, Engle R, Gerin J, Purcell RH. Double infections with hepatitis A and B viruses. *Liver* 1985;5(6):348-353.
  298. Tassopoulos NC, Papaevangelou G, Sjogren MH, Roumeliotou A, Purcell RH. IgM antibody to hepatitis B core antigen: a marker of infectivity [letter]. *N Engl J Med* 1985;313(26):1659-1660.
  299. Tassopoulos NC, Papaevangelou GJ, Roumeliotou-Karayannis K, Purcell RH. Reactivation of chronic hepatitis B as acute viral hepatitis [letter]. *Ann Intern Med* 1985;103(3):481.
  300. Tassopoulos N, Roumeliotou-Karayannis A, Tassiopoulou A, Papaevangelou G, Purcell RH. Serum HBV DNA: a sensitive marker of infectivity of hepatitis B surface antigen carriers. *Iatriki* 1985;47:229-233.
  301. Xu ZY, Francis DP, Liu CB, Purcell RH, Duan SC, Chen RJ, Wen YM. Prevention of



hepatitis B virus carriage of infants using HBV vaccine in Shanghai. Preliminary report of a randomized double-blind placebo-controlled trial. *Chin Med J (Engl)* 1985;**98**(9):623-626.

302. Xu ZY, Liu CB, Francis DP, Purcell RH, Gun ZL, Duan SC, Chen RJ, Margolis HS, Huang CH, Maynard JE. Prevention of perinatal acquisition of hepatitis B virus carriage using vaccine: preliminary report of a randomized, double-blind placebo-controlled and comparative trial. *Pediatrics* 1985;**76**(5):713-718.

## 1986

303. Buitrago B, Hadler SC, Popper H, Thung SN, Gerber MA, Purcell RH, Maynard JE. Epidemiologic aspects of Santa Marta hepatitis over a 40-year period. *Hepatology* 1986;**6**(6):1292-1296.
304. Buitrago B, Popper H, Hadler SC, Thung SN, Gerber MA, Purcell RH, Maynard JE. Specific histologic features of Santa Marta hepatitis: a severe form of hepatitis delta-virus infection in northern South America. *Hepatology* 1986;**6**(6):1285-1291.
305. Cote PJ, Shapiro M, Engle RE, Popper H, Purcell RH, Gerin JL. Protection of chimpanzees from type B hepatitis by immunization with woodchuck hepatitis virus surface antigen. *J Virol* 1986;**60**(3):895-901.
306. Flores J, Hoshino Y, Boeggeman E, Purcell R, Chanock RM, Kapikian AZ. Genetic relatedness among animal rotaviruses. *Arch Virol* 1986;**87**(3-4):273-285.
307. Gerin J, Tennant B, Popper H, Tyeryar F, Purcell RH. Woodchuck model of hepadnavirus infection and disease: vaccine studies. In: Brown F, Chanock RM, Lerner RA, eds, *Vaccines 86: New Approaches to Immunization*. New York, Cold Spring Harbor Laboratory 1986:383-386.
308. Korba BE WF, Tennant BC, Yoakum GH, Purcell RH, Gerin JL. Hepadnavirus infection of peripheral blood lymphocytes in vivo: woodchuck and chimpanzee models of viral hepatitis. *J Virol* 1986;**58**(1):1-8.
309. Koziol DE, Holland PV, Alling DW, Melpolder JC, Solomon RE, Purcell RH, Hudson LM, Shoup FJ, Krakauer H, Alter HJ. Antibody to hepatitis B core antigen as a paradoxical marker for non-A, non-B hepatitis agents in donated blood. *Ann Intern Med* 1986;**104**(4):488-495.
310. Paul DA, Purcell RH, Peterson DL. Use of monoclonal antibodies to determine if HBsAg of mixed subtype is one particle or two. *J Virol Methods* 1986;**13**(1):43-53.
311. Pohl CJ, Cote PJ, Purcell RH, Gerin JL. Failure to detect polyalbumin-binding sites on the woodchuck hepatitis virus surface antigen: implications for the pathogenesis of hepatitis B virus in humans. *J Virol* 1986;**60**(3):943-949.
312. Purcell RH. Future hepatitis A and B virus vaccines. Syllabus for AASLD Postgraduate Course on Viral Hepatitis, November 2, 1986. In: Ostrow JD et al, eds, *Hepatology Update -- Portal Hypertension; Viral Hepatitis*. Thorofare, NJ, Charles B. Slack, Inc. 1986:277-285.
313. Quinnan GV, Jr., Wells MA, Wittek AE, Phelan MA, Mayner RE, Feinstone S, Purcell RH, Epstein JS. Inactivation of human T-cell lymphotropic virus, type III by heat, chemicals, and irradiation. *Transfusion* 1986;**26**(5):481-483.
314. Rizzetto M, Ponzetto A, Bonino F, Purcell RH, Korba BE, Wells F, Tennant BC, Yoakum GH, Purcell RH, Gerin JL. Superimposed hepatitis and the effect on viral replication in chronic hepatitis B. Hepadnavirus infection of peripheral blood lymphocytes in vivo: woodchuck and chimpanzee models of viral hepatitis. *J Hepatol*

- 1986;**3 Suppl 2**(1):S35-41.
315. Rizzetto M, Verme G, Gerin JL, Purcell RH. Hepatitis delta virus disease. In Vol. VIII, Chapter 23, *Prog Liver Dis* 1986:417-431.
  316. Shimizu YK, Purcell RH, Gerin JL, Feinstone SM, Ono Y, Shikata T. Further studies by immunofluorescence of the monoclonal antibodies associated with experimental non-A, non-B hepatitis in chimpanzees and their relation to D hepatitis. *Hepatology* 1986;**6**(6):1329-1333.
  317. Smedile A, Rizzetto M, Denniston K, Bonino F, Wells F, Verme G, Consolo F, Hoyer B, Purcell RH, Gerin JL. Type D hepatitis: the clinical significance of hepatitis D virus RNA in serum as detected by a hybridization-based assay. *Hepatology* 1986;**6**(6):1297-1302.
  318. Tassopoulos NC, Papaevangelou GJ, Roumeliotou-Karayannis A, Sjogren MH, Engle R, Karpodini E, Purcell RH. Serologic markers of hepatitis B virus (HBV) and hepatitis D virus infection in carriers of hepatitis B surface antigen who are frequently exposed to HBV. *Hepatogastroenterology* 1986;**33**(4):151-154.
  319. Tassopoulos NC, Papaevangelou GJ, Roumeliotou-Karayannis A, Smedile A, Engle R, Ticehurst JR, Feinstone SM, Purcell RH. Fulminant hepatitis in asymptomatic hepatitis B surface antigen carriers in Greece. *J Med Virol* 1986;**20**(4):371-379.
  320. Tassopoulos NC, Papaevangelou GJ, Roumeliotou-Karayannis A, Ticehurst JR, Feinstone SM, Purcell RH. Search for hepatitis B virus DNA in sera from patients with acute type B or non-A, non-B hepatitis. *J Hepatol* 1986;**2**(3):410-418.
  321. Tassopoulos NC, Papaevangelou GJ, Ticehurst JR, Purcell RH. Fecal excretion of Greek strains of hepatitis A virus in patients with hepatitis A and in experimentally infected chimpanzees. *J Infect Dis* 1986;**154**(2):231-237.
  322. Tassopoulos NC, Sjogren MH, Ticehurst JR, Engle RE, Roumeliotou-Karayannis A, Gerin JL, Purcell RH, Papaevangelou G. Significance of IgM antibody to hepatitis B core antigen in a Greek population with chronic hepatitis B virus infection. *Liver* 1986;**6**(5):275-280.
  323. Ticehurst J, Karron R, Daemer R, Cohen JI, Baroudy BM, Feinstone SM, Purcell RH. Development of hepatitis A vaccines. Proceedings IXth International Congress of Infectious and Parasitic Diseases. Munich, West Germany, July 20 - 26, 1986. In: Marget W, Lang W, Gabler-Sandberger E, eds, *Viral Infection*. Munich, Germany, MMV Medizin Verlag München 1986:82-86.
  324. Weitz M, Baroudy BM, Maloy WL, Ticehurst JR, Purcell RH. Detection of a genome-linked protein (VPg) of hepatitis A virus and its comparison with other picornaviral VPgs. *J Virol* 1986;**60**:124-130.

## 1987

325. Acs G, Sells MA, Purcell RH, Price P, Engle R, Shapiro M, Popper H. Hepatitis B virus produced by transfected Hep G2 cells causes hepatitis in chimpanzees. *PNAS USA* 1987;**84**(13):4641-4644.
326. Aragona M, Macagno S, Caredda F, Crivelli O, Lavarini C, Maran E, Farci P, Purcell RH, Rizzetto M. Serological response to the hepatitis delta virus in hepatitis D. *Lancet* 1987;**1**(8531):478-480.
327. Cohen JI, Rosenblum B, Ticehurst JR, Daemer R, Feinstone S, Purcell RH. Comparison of the nucleotide sequence of wild-type hepatitis-A virus and its attenuated candidate

- vaccine derivative. In Brown F et al., eds, *Vaccines 87: Modern Approaches to New Vaccines Including Prevention of AIDS*. New York, Cold Spring Harbor Laboratory 1987:327-331.
328. Cohen JI, Rosenblum B, Ticehurst JR, Daemer RJ, Feinstone SM, Purcell RH. Complete nucleotide sequence of an attenuated hepatitis A virus: comparison with wild-type virus. *PNAS USA* 1987;**84**(8):2497-2501.
  329. Cohen JI, Ticehurst JR, Feinstone SM, Rosenblum B, Purcell RH. Hepatitis A virus cDNA and its RNA transcripts are infectious in cell culture. *J Virol* 1987;**61**(10):3035-3039.
  330. Cohen JI, Ticehurst JR, Purcell RH, Buckler-White A, Baroudy BM. Complete nucleotide sequence of wild-type hepatitis A virus: comparison with different strains of hepatitis A virus and other picornaviruses. *J Virol* 1987;**61**(1):50-59.
  331. Faust RM, Smith DR, Purcell RH, Diener TO, Gerin JL. Replication and pathology of hepatitis delta virus in tobacco plants (*Nicotiana sylvestris*): a negative report. In Rizzetto M, Gerin JL, Purcell RH, eds, *Prog Clin Biol Res. Volume 234: The Hepatitis Delta Virus and Its Infection*. New York, Alan R. Liss, Inc. 1987:23-25.
  332. Gust ID, Purcell RH. Report of a workshop: waterborne non-A, non-B hepatitis. *J Infect Dis* 1987;**156**(4):630-635.
  333. He LF, Alling D, Popkin T, Shapiro M, Alter HJ, Purcell RH. Determining the size of non-A, non-B hepatitis virus by filtration. *J Infect Dis* 1987;**156**(4):636-640.
  334. Lavarini C, Caredda F, Ballare M, Purcell RH, Macagno S, Rizzetto M. Development of autoantibodies in the course of HDV infection. In: Rizzetto M, Purcell RH, Gerin J, eds, *Progress in Clinical and Biological Research. Volume 234: The Hepatitis Delta Virus and Its Infection*. New York, Alan R. Liss, Inc. 1987:341.
  335. Pohl C, Baroudy BM, Bergmann KF, Cote PJ, Purcell RH, Hoofnagle J, Gerin JL. A human monoclonal antibody that recognizes viral polypeptides and in vitro translation products of the genome of the hepatitis D virus. *J Infect Dis* 1987;**156**(4):622-629.
  336. Ponzetto A, Hoyer BH, Popper H, Engle R, Purcell RH, Gerin JL. Titration of the infectivity of hepatitis D virus in chimpanzees. *J Infect Dis* 1987;**155**(1):72-78.
  337. Popper H, Buitrago B, Hadler SC, Thung SN, Gerber MA, Purcell RH, Maynard JE. Pathology of hepatitis delta infection in the Amazon basin. In: Rizzetto M, Purcell RH, Gerin J, eds, *Progress in Clinical and Biological Research. Volume 234: The Hepatitis Delta Virus and Its Infection*. New York, Alan R. Liss, Inc. 1987:121-128.
  338. Popper H, Purcell RH, Gerin JL. Histology of hepadna and delta virus-induced hepatitis and hepatocellular carcinoma. UCLA Symposia on Molecular and Cellular Biology, New Series. In: Robinson W, Koike K, Will H, eds, *Hepadna Viruses*. New York, Alan R. Liss, Inc. 1987;**70**:373-386.
  339. Popper H, Roth L, Purcell RH, Tennant BC, Gerin JL. Hepatocarcinogenicity of the woodchuck hepatitis virus. *PNAS USA* 1987;**84**(3):866-870.
  340. Purcell RH. Status of hepatitis A vaccines. In Brinton MA, Rueckert RR, eds, *Positive Strand RNA Viruses*. New York, Alan R. Liss, Inc. 1987:565-574.
  341. Purcell RH, Gerin JL. Hepatitis B vaccines, past, present and future: lessons for AIDS vaccine development. UCLA Symposia on Molecular and Cellular Biology, New Series. In: Robinson W, Koike K, Will H, eds, *Hepadna Viruses*. New York, Alan R. Liss, Inc. 1987;**70**:465-479.
  342. Purcell RH, Satterfield WC, Bergmann KF, Smedile A, Ponzetto A, Gerin JL.

- Experimental hepatitis delta virus infection in the chimpanzee. In: Rizzetto M, Purcell RH, Gerin J, eds, *Prog Clin Biol Res Volume 234: The Hepatitis Delta Virus and Its Infection*: New York, Alan R. Liss, Inc. 1987:27-36.
343. Shimizu YK, Purcell RH, Gerin JL, Feinstone SM, Ono Y, Shikata T. Relation between non-A, non-B and delta hepatitis: studies with monoclonal antibodies. In: Rizzetto M, Purcell RH, Gerin J, eds, *Prog Clin Biol Res, Volume 234: The Hepatitis Delta Virus and Its Infection*: New York, Alan R. Liss, Inc. 1987:51-60.
  344. Smedile A, Baroudy BM, Bergmann KF, Rizzetto M, Purcell RH, Gerin JL. Clinical significance of HDV RNA in HDV disease. In Rizzetto M, Purcell RH, Gerin J, eds, *Prog Clin Biol Res, Volume 234: The Hepatitis Delta Virus and Its Infection*: New York, Alan R. Liss, Inc. 1987:235-241.
  345. Tassopoulos NC, Papaevangelou GJ, Roumeliotou-Karayannis A, Ticehurst JR, Feinstone SM, Purcell RH. Detection of hepatitis B virus DNA in asymptomatic hepatitis B surface antigen carriers: relation to sexual transmission. *Am J Epidemiol* 1987;**126**(4):587-591.
  346. Tassopoulos NC, Sjogren M, Papaevangelou G, Roumeliotou-Karayannis A, Purcell RH. Prognostic significance of 19S and 7-8S forms of IgM anti-HBc in acute hepatitis superimposed on HBsAg carriage. In Rizzetto M, Purcell RH, Gerin J, eds, *Prog Clin Biol Res, Volume 234: The Hepatitis Delta Virus and Its Infection*: New York, Alan R. Liss, Inc. 1987:357-358.
  347. Tassopoulos NC, Papaevangelou GJ, Sjogren MH, Roumeliotou-Karayannis A, Gerin JL, Purcell RH. Natural history of acute hepatitis B surface antigen-positive hepatitis in Greek adults. *Gastroenterology* 1987;**92**(6):1844-1850.
  348. Tassopoulos NC, Roumeliotou-Karayannis A, Sakka M, Ticehurst J, Mihalik K, Stephanou T, Purcell RH, Papaevangelou G. An epidemic of hepatitis A in an institution for young children. *Am J Epidemiol* 1987;**125**(2):302-307.
  349. Thornton GB, Milich D, Chisari F, Mitamura K, Kent SB, Neurath R, Purcell R, Gerin J. Immune response in primates to the pre-S2 region of hepatitis-B surface antigen: identification of a protective determinant. In: Chanock RM, Lerner RA, Brown F, Ginsberg H, eds, *Vaccines 87*. New York, Cold Spring Harbor Laboratory 1987:77-80.
  350. Ticehurst JR, Feinstone SM, Chestnut T, Tassopoulos NC, Popper H and Purcell RH. Detection of hepatitis A virus by extraction of viral RNA and molecular hybridization. *J Clin Microbiol* 1987;**25**(10):1822-1829.

## 1988

351. Arankalle VA, Ticehurst J, Sreenivasan MA, Kapikian AZ, H P, Pavri KM, Purcell RH. Aetiologic association of a virus-like particle with enterically transmitted non-A, non-B hepatitis. *Lancet* 1988;**1**:550-554.
352. Cohen JI, Miller R, Rosenblum B, Denniston K, Gerin JL, Purcell RH. Nucleotide sequence of woodchuck hepatitis viruses shows evidence for emergence of subtypes. Proceedings 1987 International Symposium on Viral Hepatitis and Liver Disease, London, England, May, 1987. In Zuckerman A, ed, *Viral Hepatitis and Liver Disease*. New York, Alan R. Liss, Inc. 1988:469-470.
353. Cohen JI, Miller RH, Rosenblum B, Denniston K, Gerin JL, Purcell RH. Sequence comparison of woodchuck hepatitis virus replicative forms shows conservation of the genome. *Virology* 1988;**162**(1):12-20.
354. Cohen JI, Rosenblum B, Daemer RJ, Ticehurst JR, Feinstone SM, Purcell RH.

- Attenuation of hepatitis A virus: molecular analysis. Proceedings 1987 International Symposium on Viral Hepatitis and Liver Disease, London, May, 1987. In Zuckerman A, ed, *Viral Hepatitis and Liver Disease*. New York, Alan R. Liss, Inc. 1988:43-47.
355. Cohen JI, Rosenblum B, Feinstone S, Ticehurst J, Purcell RH. Use of infectious hepatitis-A virus cDNA to study viral attenuation. In Chanock RM, Lerner RA, Brown F, Ginsberg H, eds, *Modern Approaches to New Vaccines Including Prevention of AIDS*. New York, Cold Spring Harbor Laboratory 1988:133-137.
  356. Cohen JI, Ticehurst JR, Feinstone SM, Rosenblum B, Purcell RH. Infectious hepatitis A virus cDNA: implications for vaccine development. Proceedings 1987 International Symposium on Viral Hepatitis and Liver Disease, London, May, 1987. In Zuckerman A, ed, *Viral Hepatitis and Liver Disease*. New York, Alan R. Liss, Inc. 1988:67-69.
  357. Feinman SV, Bérís B, Gerin JL, Purcell RH. Hepatitis delta infections in Toronto, Ontario. *Clin Gastroenterol* 1988;2:151-155.
  358. Gowans EJ, Baroudy BM, Negro F, Ponzetto A, Purcell RH, Gerin JL. Evidence for replication of hepatitis delta virus RNA in hepatocyte nuclei after *in vivo* infection. *Virology* 1988;167(1):274-278.
  359. Johnson PR, Parks DE, Norrby E, Lerner RA, Purcell RH, Chanock RM. Site-directed ELISA identifies a highly antigenic region of the simian immunodeficiency virus transmembrane glycoprotein. *AIDS Res Hum Retrovir* 1988;4:159-164.
  360. Johnson PR, Purcell RH, Chanock RM, Parks DE, Norrby E, Lerner RA. Site-directed ELISA identifies a highly antigenic region of the simian immunodeficiency virus transmembrane glycoprotein. In Chanock RM, Lerner RA, Brown F, Ginsberg H, eds, *Modern Approaches to New Vaccines Including Prevention of AIDS*. New York, Cold Spring Laboratory 1988:271-276.
  361. Karron RA, Daemer R, Ticehurst J, D'Hondt E, Popper H, Mihalik K, Phillips J, Feinstone S, Purcell RH. Studies of prototype live hepatitis A virus vaccines in primate models. *J Infect Dis* 1988;157(2):338-345.
  362. Karron RA, Daemer RJ, Ticehurst JR, Mihalik K, Popper H, Feinstone SM, Purcell RH. Evaluation of attenuation of cell-culture-adapted hepatitis A virus in nonhuman primates. Proceedings 1987 International Symposium on Viral Hepatitis and Liver Disease, London, May, 1987. In Zuckerman A, ed, *Viral Hepatitis and Liver Disease*. New York, Alan R. Liss, 1988:74-76.
  363. Negro F, Bergmann KF, Baroudy BM, Satterfield WC, Popper H, Purcell RH, Gerin JL. Chronic hepatitis D virus (HDV) infection in hepatitis B virus carrier chimpanzees experimentally superinfected with HDV. *J Infect Dis* 1988;158(1):151-159.
  364. Pohl C, Baroudy BM, Bergmann KF, Cote PJ, Purcell RH, Hoofnagle J, Gerin JL. A human monoclonal antibody against hepatitis delta virus that detects viral antigens and *in vitro* translation products. Proceedings 1987 International Symposium on Viral Hepatitis and Liver Disease, London, May, 1987. In Zuckerman A, ed, *Viral Hepatitis and Liver Disease*. New York, Alan R. Liss, 1988:406-408.
  365. Ponzetto A, Negro F, Popper H, Bonino F, Engle R, Rizzetto M, Purcell RH, Gerin JL. Serial passage of hepatitis delta virus in chronic hepatitis B virus carrier chimpanzees. *Hepatology* 1988;8(6):1655-1661.
  366. Purcell RH, Blum HE. Molecular analysis of hepatitis B virus infection. *Transfus Med Rev* 1988;2(4):278-287.
  367. Purcell RH, Ticehurst JR. Enterically transmitted non-A, non-B hepatitis: epidemiology

and clinical characteristics. Proceedings 1987 International Symposium on Viral Hepatitis and Liver Disease, London, May, 1987. In Zuckerman A, ed, *Viral Hepatitis and Liver Disease*. New York, Alan R. Liss, 1988:131-137.

368. Ramalingaswami V, Purcell RH. Waterborne non-A, non-B hepatitis. *Lancet* 1988;1(8585):571-573.
369. Tennant B, Hornbuckle WE, Baldwin BH, King JM, Cote P, Popper H, Purcell RH, Gerin JL. Influence of age on the response to experimental woodchuck hepatitis virus infection. Proceedings 1987 International Symposium on Viral Hepatitis and Liver Disease, London, May, 1987. In Zuckerman A, ed, *Viral Hepatitis and Liver Disease*. New York, Alan R. Liss, 1988:462-464.
370. Ticehurst J, Cohen JI, Purcell RH. Analysis of molecular sequences demonstrates that hepatitis A virus is a unique picornavirus. Proceedings 1987 International Symposium on Viral Hepatitis and Liver Disease, London, May, 1987. In Zuckerman A, ed, *Viral Hepatitis and Liver Disease*. New York, Alan R. Liss, 1988:33-35.

## 1989

371. Alter HJ, Purcell RH, Shih JW, Melpolder JC, Houghton M, Choo QL, Kuo G. Detection of antibody to hepatitis C virus in prospectively followed transfusion recipients with acute and chronic non-A, non-B hepatitis. *N Engl J Med* 1989;321(22):1494-1500.
372. Cohen JI, Feinstone S, Purcell RH. Hepatitis A virus infection in a chimpanzee: duration of viremia and detection of virus in saliva and throat swabs. *J Infect Dis* 1989;160(5):887-890.
373. Cohen JI, Rosenblum B, Feinstone SM, Ticehurst J, Purcell RH. Attenuation and cell culture adaptation of hepatitis A virus (HAV): a genetic analysis with HAV cDNA. *J Virol* 1989;63(12):5364-5370.
374. Emerson S, Rosenblum B, Feinstone S, Purcell R. Identification of the hepatitis-A virus genes involved in adaptation to tissue-culture growth and attenuation. In Lerner RA, Ginsberg H, Chanock RM, Brown F, eds, *Modern Approaches to New Vaccines Including Prevention of AIDS*. New York, Cold Spring Harbor Laboratory 1989:427-430.
375. Fauci AS, Gallo RC, Koenig S, Salk J, Purcell RH. NIH conference. Development and evaluation of a vaccine for human immunodeficiency virus (HIV) infection. *Ann Intern Med* 1989;110(5):373-385.
376. Girones R, Cote PJ, Hornbuckle WE, Tennant BC, Gerin JL, Purcell RH, Miller RH. Complete nucleotide sequence of a molecular clone of woodchuck hepatitis virus that is infectious in the natural host. *PNAS USA* 1989;86(6):1846-1849.
377. He LF, Ford E, Purcell RH, London WT, Phillips J, Gerin JL. The size of the hepatitis delta agent. *J Med Virol* 1989;27(1):31-33.
378. Hirsch VM, Dapolito G, McGann C, Olmsted RA, Purcell RH, Johnson PR. Molecular cloning of SIV from sooty mangabey monkeys. *J Med Primatol* 1989;18(3-4):279-285.
379. Hirsch VM, Olmsted RA, Murphey-Corb M, Purcell RH, Johnson PR. An African primate lentivirus (SIVsm) closely related to HIV-2. *Nature* 1989; 339(6223):389-392.
380. Johnson PR, Gravell M, Allan J, Goldstein S, Olmsted RA, Dapolito G, McGann C, London WT, Purcell RH, Hirsch VM. Genetic diversity among simian immunodeficiency virus isolates from African green monkeys. *J Med Primatol* 1989;18(3-4):271-277.
381. Kaneko S, Miller RH, Feinstone SM, Unoura M, Kobayashi K, Hattori N, Purcell RH. Detection of serum hepatitis B virus DNA in patients with chronic hepatitis using the

- polymerase chain reaction assay. *PNAS USA* 1989;**86**(1):312-316.
382. Koenig S, Hirsch VM, Olmsted RA, Powell D, Maury W, Rabson A, Fauci AS, Purcell RH, Johnson PR. Selective infection of human CD4+ cells by simian immunodeficiency virus: productive infection associated with envelope glycoprotein-induced fusion. *PNAS USA* 1989;**86**(7):2443-2447.
  383. Korba BE, Cote PJ, Shapiro M, Purcell RH, Gerin JL. *In vitro* production of infectious woodchuck hepatitis virus by lipopolysaccharide-stimulated peripheral blood lymphocytes. *J Infect Dis* 1989;**160**(4):572-576.
  384. Korba BE, Cote PJ, Wells FV, Baldwin B, Popper H, Purcell RH, Tennant BC, Gerin JL. Natural history of woodchuck hepatitis virus infections during the course of experimental viral infection: molecular virologic features of the liver and lymphoid tissues. *J Virol* 1989;**63**(3):1360-1370.
  385. Kuo G, Choo QL, Alter HJ, Gitnick GL, Redeker AG, Purcell RH, Miyamura T, Dienstag JL, Alter MJ, Stevens CE. An assay for circulating antibodies to a major etiologic virus of human non-A, non-B hepatitis. *Science* 1989;**244**(4902):362-364.
  386. Lairmore MD, Kaplan JE, Daniel MD, Lerche NW, Nara PL, McClure HM, McVicar JW, McKinney RW, Hendry M, Gerone P. Guidelines for the prevention of simian immunodeficiency virus infection in laboratory workers and animal handlers. *J Med Primatol* 1989;**18**(3-4):167-174.
  387. Lubeck MD, Davis AR, Chengalvala M, Natuk RJ, Morin JE, Molnar-Kimber K, Mason BB, Bhat BM, Mizutani S, Hung PP. Immunogenicity and efficacy testing in chimpanzees of an oral hepatitis B vaccine based on live recombinant adenovirus. *PNAS USA* 1989;**86**(17):6763-6767.
  388. Miller RH, Kaneko S, Chung CT, Girones R, Purcell RH. Compact organization of the hepatitis B virus genome. *Hepatology* 1989;**9**(2):322-327.
  389. Negro F, Gerin JL, Purcell RH, Miller RH. Basis of hepatitis delta virus disease? [letter; comment]. *Nature* 1989;**341**(6238):111.
  390. Negro F, Shapiro M, Satterfield WC, Gerin JL, Purcell RH. Reappearance of hepatitis D virus (HDV) replication in chronic hepatitis B virus carrier chimpanzees rechallenged with HDV. *J Infect Dis* 1989;**160**(4):567-571.
  391. Olmsted RA, Barnes AK, Yamamoto JK, Hirsch VM, Purcell RH, Johnson PR. Molecular cloning of feline immunodeficiency virus. *PNAS USA* 1989;**86**(7):2448-2452.
  392. Olmsted RA, Hirsch VM, Purcell RH, Johnson PR. Nucleotide sequence analysis of feline immunodeficiency virus: genome organization and relationship to other lentiviruses. *PNAS USA* 1989;**86**(20):8088-8092.
  393. Purcell RH. Does non-A, non-B hepatitis cause hepatocellular carcinoma? *Cancer Detect Prev* 1989;**14**(2):203-207.
  394. Purcell RH. Enterically transmitted hepatitis viruses: prospects for control. In: Talwar GP, ed., *Progress in Vaccinology*. New York, Springer-Verlag 1989:93-100.
  395. Purcell RH, Hoofnagle JH, Ticehurst J, Gerin JL. Hepatitis Viruses. In: Schmidt NJ, Emmons RW, eds, *Diagnostic Procedures for Viral, Rickettsial and Chlamydial Infections*. Washington, DC, American Public Health Association, 1989:957-1065.
  396. Shimizu YK, Purcell RH. Cytoplasmic antigen in hepatocytes of chimpanzees infected with non-A, non-B hepatitis virus or hepatitis delta virus: relationship to interferon. *Hepatology* 1989;**10**(5):764-768.
  397. Tassopoulos NC, Theodoropoulos G, Sjogren MH, Engle R, Purcell RH. Serological

markers of hepatitis B virus and hepatitis D virus infections in Greek adults with primary hepatocellular carcinoma. *Infection* 1989;17(1):17-19.

398. Thornton GB, Moriarty AM, Milich DR, Eichberg JW, Purcell RH, Gerin JL. Protection of chimpanzees from hepatitis-B virus infection after immunization with synthetic peptides: identification of protective epitopes in the pre-S region. In *Vaccines 89*. Cold Spring Harbor, New York, Cold Spring Harbor Laboratory 1989:467-471.
399. Ticehurst J, Cohen JI, Feinstone SM, Purcell RH, Jansen RW, Lemon SM. Replication of hepatitis A virus: new ideas from studies with cloned cDNA. In: Ehrenfeld E, Semler BL, eds, *Molecular Aspects of Picornavirus Infection and Detection*. Washington, DC, American Society of Microbiology 1989:27-50.

## 1990

400. Collins PL, Davis AR, Lubeck MD, Mizutani S, Hung PP, Prince GA, Purcell RH, Chanock RM, Murphy BR. Evaluation of the protective efficacy of recombinant vaccinia viruses and adenoviruses that express respiratory syncytial virus glycoproteins. In Brown F, Chanock RM, Ginsberg H, Lerner RA, eds, *Vaccines 90: Modern Approaches to New Vaccines Including Prevention of AIDS*. Cold Spring Harbor, NY, Cold Spring Harbor Laboratory 1990:79-84.
401. Collins PL, Purcell RH, London WT, Lawrence LA, Chanock RM, Murphy BR. Evaluation in chimpanzees of vaccinia virus recombinants that express the surface glycoproteins of human respiratory syncytial virus. *Vaccine* 1990;8(2):164-168.
402. Dienes HP, Purcell RH, Popper H, Ponzetto A. The significance of infections with two types of viral hepatitis demonstrated by histologic features in chimpanzees. *J Hepatol* 1990;10(1):77-84.
403. Kaneko S, Miller RH, Di Bisceglie AM, Feinstone SM, Hoofnagle JH, Purcell RH. Detection of hepatitis B virus DNA in serum by polymerase chain reaction. Application for clinical diagnosis. *Gastroenterology* 1990;99(3):799-804.
404. Kaneko S, Miller RH, Di Bisceglie AM, Feinstone SM, Hoofnagle JH, Purcell RH. Hepatitis B virus DNA detection and comparison with hepatitis B surface antigen. *Gastroenterol Jpn* 1990;25 Suppl 2:57-61.
405. Kiyosawa K, Sodeyama T, Tanaka E, Gibo Y, Yoshizawa K, Nakano Y, Furuta S, Akahane Y, Nishioka K, Purcell RH. Interrelationship of blood transfusion, non-A, non-B hepatitis and hepatocellular carcinoma: analysis by detection of antibody to hepatitis C virus. *Hepatology* 1990;12(4 Pt 1):671-675.
406. Miller RH, Girones R, Cote PJ, Hornbuckle WE, Chestnut T, Baldwin BH, Korba BE, Tennant BC, Gerin JL, Purcell RH. Evidence against a requisite role for defective virus in the establishment of persistent hepadnavirus infections. *PNAS USA* 1990;87(23):9329-9332.
407. Miller RH, Purcell RH. Hepatitis C virus shares amino acid sequence similarity with pestiviruses and flaviviruses as well as members of two plant virus supergroups. *PNAS USA* 1990;87(6):2057-2061.
408. Purcell RH. Enterically transmitted non-A, non-B hepatitis. *Prog Liver Dis* 1990;9:497-504.
409. Purcell RH. Hepatitis A-current status and future. In: Sung J-L, Chen D-S, eds, *Proceedings II International Symposium on Viral Hepatitis and Hepatocellular Carcinoma (1988)*. Taipei, Taiwan, ROC, Excerpta Medica, 1990:36-42.
410. Purcell RH, Gerin JL. Hepatitis delta virus. In: Fields BN, Knipe DM, et al. eds,



*Virology*. New York, Raven Press, Ltd. 1990:2275-2287.

- 411. Shimizu YK, Weiner AJ, Rosenblatt J, Wong DC, Shapiro M, Popkin T, Houghton M, Alter HJ, Purcell RH. Early events in hepatitis C virus infection of chimpanzees. *PNAS USA* 1990;**87**(16):6441-6444.
- 412. Smedile A, Bergmann KF, Baroudy BM, Wells FV, Purcell RH, Bonino F, Rizzetto M, Gerin JL. Riboprobe assay for HDV RNA: a sensitive method for the detection of the HDV genome in clinical serum samples. *J Med Virol* 1990;**30**(1):20-24.
- 413. Tassopoulos NC, Sjogren MH, Purcell RH. 19S and 7-8S forms of IgM antibody to hepatitis B core antigen in acute icteric hepatitis superimposed on hepatitis B surface antigen carriage. *Infection* 1990;**18**(6):376-380.
- 414. Wong DC, Diwan AR, Rosen L, Gerin JL, Johnson RG, Polito A, Purcell RH. Non-specificity of anti-HCV test for seroepidemiological analysis [letter] [see comments]. *Lancet* 1990;**336**(8717):750-751.

## 1991

- 415. Emerson S, McRill C, Purcell R. Effect of 5' mutations on the host range of hepatitis A virus in cell culture. In: Hollinger FB, Lemon SM, Margolis H, eds, *Hepatitis and Liver Disease*. Baltimore, MD, Williams & Wilkins 1991:62-63.
- 416. Emerson SU, McRill C, Rosenblum B, Feinstone S, Purcell RH. Mutations responsible for adaptation of hepatitis A virus to efficient growth in cell culture. *J Virol* 1991;**65**(9):4882-4886.
- 417. Emerson SU, Tsarev SA, Purcell RH. Biological and molecular comparisons of human (HM-175) and simian (AGM-27) hepatitis A viruses. *J Hepatology* 1991;**13**:S144-145.
- 418. Farci P, Alter HJ, Wong D, Miller RH, Shih JW, Jett B, Purcell RH. A long-term study of hepatitis C virus replication in non-A, non-B hepatitis [see comments]. *N Engl J Med* 1991;**325**(2):98-104.
- 419. Gerin JL, Cote PJ, Korba BE, Miller RH, Purcell RH, Tennant BC. Hepatitis B virus and liver cancer: the woodchuck as an experimental model of hepadnavirus-induced liver cancer. In: Hollinger FB, Lemon SM, Margolis H, eds, *Hepatitis and Liver Disease*. Baltimore, MD, Williams & Wilkins 1991:556-559.
- 420. Jupp PG, Purcell RH, Phillips JM, Shapiro M, Gerin JL. Attempts to transmit hepatitis B virus to chimpanzees by arthropods. *S Afr Med J* 1991;**79**(6):320-322.
- 421. Kiyosawa K, Sodeyama T, Tanaka E, Nakano Y, Furuta S, Nishioka K, Purcell RH, Alter HJ. Hepatitis C in hospital employees with needlestick injuries [see comments]. *Ann Intern Med* 1991;**115**(5):367-369.
- 422. Kiyosawa K, Sodeyama T, Tanaka E, Nakano Y, Shimizu S, Furuta S, Nishioka K, Alter HJ, Purcell RH. Causal relationship between non-A, non-B hepatocellular carcinoma after posttransfusion hepatitis and hepatitis C virus. In: Hollinger FB, Lemon SM, Margolis H, eds, *Hepatitis and Liver Disease*. Baltimore, MD, Williams & Wilkins 1991:592-594.
- 423. Negro F, Emerson SU, McRill C, Bonino F, Craxi A, Gerin JL, Miller RH, Purcell RH. A polymerase-chain reaction-based assay for serum HDV RNA. In: Gerin JL, Purcell RH, Rizzetto M, eds, *Prog Clin Biol Res, Volume 364: The Hepatitis Delta Virus*. New York, NY, Wiley-Liss, Inc. 1991:179-184.
- 424. Negro F, Gerin JL, Purcell RH, Miller RH. Sequence homology between HDV RNA and 7-SL RNA: implications for pathogenesis. In Gerin JL, Rizzetto M, Purcell RH, eds, *Prog Clin Biol Res, Volume 364: The Hepatitis Delta Virus*. New York, Wiley-Liss, Inc.

1991:327-332.

- 425. Ogata N, Alter HJ, Miller RH, Emerson SU, Tsarev SA, Purcell RH. Nucleotide sequence and mutation rate of the H strain of hepatitis C virus. *PNAS USA* 1991;**88**(8):3392-3396.
- 426. Phillips MJ, Blendis LM, Poucell S, Patterson J, Petric M, Roberts E, Levy GA, Superina RA, Greig PD, Cameron R, Langer B, Purcell RH. Syncytial giant-cell hepatitis. Sporadic hepatitis with distinctive pathological features, a severe clinical course, and paramyxoviral features. *N Engl J Med* 1991;**324**(7):455-460.
- 427. Ponzetto A, Negro F, Gerin JL, Purcell RH. Experimental hepatitis delta virus infection in the animal model. In: Gerin JL, Purcell RH, Rizzetto M, eds, *Prog Clin Biol Res. Volume 364: The Hepatitis Delta Virus*: New York, Wiley-Liss, Inc. 1991:147-157.
- 428. Purcell RH. Approaches to immunization against hepatitis A virus. In: Hollinger FB, Lemon SM, Margolis H, eds, *Hepatitis and Liver Disease*. Baltimore, MD, Williams & Wilkins, 1991:41-46.
- 429. Purcell R. Prospects for prevention of hepatitis types B and C in North America. In Tabor E, DiBisceglie AM, Purcell RH, eds, *Etiology, Pathology, and Treatment of Hepatocellular Carcinoma in North America*. Texas, Portfolio Publishing Co. 1991:343-354.
- 430. Purcell RH and Gerin JL. Chapter 5. Hepatitis Delta Virus. In: Hollinger FB, Robinson WS, Purcell RH, Gerin JL and Ticehurst J, eds, *Viral Hepatitis: biological and clinical features, specific diagnosis and prophylaxis*. New York, Raven Press 1991:175-187.
- 431. Purcell RH, Gerin JL. Chapter 31. In: Berk PD, Schaffner F, Schmid R, eds, *Hans Popper: A Tribute*. New York, Raven Press 1991:126-130.
- 432. Purcell RH, Miller RH. The nature of genetic variation among viruses. *J Hepatol* 1991;**13 Suppl 4**:S2-5.
- 433. Shimizu YK, Weiner AJ, Rosenblatt J, Wong DC, Shapiro M, Popkin T, Houghton M, Alter HJ, Purcell RH. Early events in hepatitis C virus infection of chimpanzees. In Hollinger FB, Lemon SM, Margolis H, eds, *Hepatitis and Liver Disease*. Baltimore, MD, Williams & Wilkins 1991:393-396.
- 434. Tsarev SA, Emerson SU, Balayan MS, Ticehurst J, Purcell RH. Simian hepatitis A virus (HAV) strain AGM-27: comparison of genome structure and growth in cell culture with other HAV strains. *J Gen Virol* 1991;**72**(Pt 7):1677-1683.

## 1992

- 435. Bukh J, Purcell RH, Miller RH. Sequence analysis of the 5' noncoding region of hepatitis C virus. *PNAS USA* 1992;**89**(11):4942-4946.
- 436. Bukh J, Purcell RH, Miller RH. Importance of primer selection for the detection of hepatitis C virus RNA with the polymerase chain reaction assay. *PNAS USA* 1992;**89**(1):187-191.
- 437. Chen HS, Kew MC, Hornbuckle WE, Tennant BC, Cote PJ, Gerin JL, Purcell RH, Miller RH. The precore gene of the woodchuck hepatitis virus genome is not essential for viral replication in the natural host. *J Virol* 1992;**66**(9):5682-5684.
- 438. Cheng SM, Lee SG, Ronchetti-Blume M, Virk KP, Mizutani S, Eichberg JW, Davis A, Hung PP, Hirsch VM, Chanock RM. Coexpression of the simian immunodeficiency virus Env and Rev proteins by a recombinant human adenovirus host range mutant. *J Virol* 1992;**66**(11):6721-6727.
- 439. Emerson SU, Huang YK, McRill C, Lewis M, Purcell RH. Mutations in both the 2B and

- 2C genes of hepatitis A virus are involved in adaptation to growth in cell culture. *J Virol* 1992;**66**(2):650-654.
440. Emerson SU, Huang YK, McRill C, Lewis M, Shapiro M, London WT, Purcell RH. Molecular basis of virulence and growth of hepatitis A virus in cell culture. (Published in Supplement as Proceedings of International Symposium on Active Immunization Against Hepatitis A, January, 1992, Vienna, Austria). *Vaccine* 1992;**10 Suppl 1**:S36-39.
  441. Emerson SU, Lewis M, Govindarajan S, Shapiro M, Moskal T, Purcell RH. cDNA clone of hepatitis A virus encoding a virulent virus: induction of viral hepatitis by direct nucleic acid transfection of marmosets. *J Virol* 1992; **66**(11):6649-6654.
  442. Emerson SU, McRill C, Purcell R. Effect of 5' mutations on the host range of hepatitis A virus in cell culture. In Hollinger FB, Lemon SM, Margolis H, eds, *Hepatitis and Liver Disease*. Baltimore, MD, Williams & Wilkins 1992:62-63.
  443. Farci P, Alter HJ, Govindarajan S, Wong DC, Engle R, Lesniewski RR, Mushahwar IK, Desai SM, Miller RH, Ogata N, Purcell RH. Lack of protective immunity against reinfection with hepatitis C virus. *Science* 1992;**258**(5079):135-140.
  444. Farci P, London WT, Wong DC, Dawson GJ, Vallari DS, Engle R, Purcell RH. The natural history of infection with hepatitis C virus (HCV) in chimpanzees: comparison of serologic responses measured with first- and second-generation assays and relationship to HCV viremia. *J Infect Dis* 1992;**165**(6):1006-1011.
  445. Johnson PR, Montefiori DC, Goldstein S, Hamm TE, Zhou J, Kitov S, Haigwood NL, Misher L, London WT, Gerin JL. Inactivated whole-virus vaccine derived from a proviral DNA clone of simian immunodeficiency virus induces high levels of neutralizing antibodies and confers protection against heterologous challenge. *PNAS USA* 1992;**89**(6):2175-2179.
  446. Kelen GD, Green GB, Purcell RH, Chan DW, Qaqish BF, Sivertson KT, Quinn TC. Hepatitis B and hepatitis C in emergency department patients [see comments]. *N Engl J Med* 1992;**326**(21):1399-1404.
  447. Negro F, Pacchioni D, Shimizu Y, Miller RH, Bussolati G, Purcell RH, Bonino F. Detection of intrahepatic replication of hepatitis C virus RNA by in situ hybridization and comparison with histopathology. *PNAS USA* 1992;**89**(6):2247-2251.
  448. Purcell RH. Primates and hepatitis research. In, *Chimpanzee Conservation and Public Health: Environments for the Future*. Rockville, MD, Diagon Corporation/Bioqual, Inc. 1992:15-20.
  449. Purcell RH, D'Hondt E, Bradbury R, Emerson SU, Govindarajan S, Binn L. Inactivated hepatitis A vaccine: active and passive immunoprophylaxis in chimpanzees. (Published in Supplement as Proceedings of International Symposium on Active Immunization Against Hepatitis A, January, 1992, Vienna, Austria). *Vaccine* 1992;**10 Suppl 1**:S148-151.
  450. Shimizu YK, Iwamoto A, Hijikata M, Purcell RH, Yoshikura H. Evidence for in vitro replication of hepatitis C virus genome in a human T-cell line. *PNAS USA* 1992;**89**(12):5477-5481.
  451. Sjogren MH, Purcell RH, McKee K, Binn L, Macarthy P, Ticehurst J, Feinstone S, Caudill J, See A, Hoke C. Clinical and laboratory observations following oral or intramuscular administration of a live attenuated hepatitis A vaccine candidate. (Published in Supplement as Proceedings of International Symposium on Active Immunization Against Hepatitis A, January, 1992, Vienna, Austria). *Vaccine* 1992;**10**

**Suppl 1:S135-137.**

- 452. Ticehurst J, Popkin TJ, Bryan JP, Innis BL, Duncan JF, Ahmed A, Iqbal M, Malik I, Kapikian AZ, Legters LJ. Association of hepatitis E virus with an outbreak of hepatitis in Pakistan: serologic responses and pattern of virus excretion. *J Med Virol* 1992;**36**(2):84-92.
- 453. Tsarev SA, Emerson SU, Reyes GR, Tsareva TS, Legters LJ, Malik IA, Iqbal M, Purcell RH. Characterization of a prototype strain of hepatitis E virus. *PNAS USA* 1992;**89**(2):559-563.

**1993**

- 454. Bukh J, Miller RH, Kew MC, Purcell RH. Hepatitis C virus RNA in southern African blacks with hepatocellular carcinoma. *PNAS USA* 1993;**90**(5):1848-1851.
- 455. Bukh J, Miller RH, Purcell RH. Amorce universelles pour détecter l'ARN du virus de l'hépatite C par PCR. In : Larzul D, ed, *La PCR un procédé de répllication in vitro*. Paris, Lavoisier, 1993:246-247.
- 456. Bukh J, Purcell RH, Miller RH. At least 12 genotypes of hepatitis C virus predicted by sequence analysis of the putative E1 gene of isolates collected worldwide. *PNAS USA* 1993;**90**(17):8234-8238.
- 457. Bukh J, Wantzin P, Krogsgaard K, Knudsen F, Purcell RH, Miller RH. High prevalence of hepatitis C virus (HCV) RNA in dialysis patients: failure of commercially available antibody tests to identify a significant number of patients with HCV infection. Copenhagen Dialysis HCV Study Group. *J Infect Dis* 1993;**168**(6):1343-1348.
- 458. Chen HS, Kaneko S, Girones R, Anderson RW, Hornbuckle WE, Tennant BC, Cote PJ, Gerin JL, Purcell RH, Miller RH. The woodchuck hepatitis virus X gene is important for establishment of virus infection in woodchucks. *J Virol* 1993;**67**(3):1218-1226.
- 459. Emerson SU, Huang YK, Purcell RH. 2B and 2C mutations are essential but mutations throughout the genome of HAV contribute to adaptation to cell culture. *Virology* 1993;**194**(2):475-480.
- 460. Farci P, Purcell RH. Natural history and experimental models. In Zuckerman & Thomas, eds., *Viral Hepatitis: Scientific Basis and Clinical Management*. Edinburgh, Churchill Livingstone 1993:241-267.
- 461. Hijikata M, Shimizu YK, Kato H, Iwamoto A, Shih JW, Alter HJ, Purcell RH, Yoshikura H. Equilibrium centrifugation studies of hepatitis C virus: evidence for circulating immune complexes. *J Virol* 1993;**67**(4):1953-1958.
- 462. Kew MC, Chestnut T, Baldwin BH, Hornbuckle WE, Tennant BC, Purcell RH, Miller RH. Heterogeneity of the woodchuck hepatitis virus genome in a chronically infected woodchuck. *Virus Res* 1993;**27**(3):229-237.
- 463. Kew MC, Miller RH, Chen HS, Tennant BC, Purcell RH. Mutant woodchuck hepatitis virus genomes from virions resemble rearranged hepadnaviral integrants in hepatocellular carcinoma. *PNAS USA* 1993;**90**(21):10211-10215.
- 464. Miller RH, Bukh J, Purcell RH. Importance of the polymerase chain reaction in the study of hepatitis C virus infection. *Int J Clin Lab Res* 1993;**23**(3):139-145.
- 465. Ogata N, Miller RH, Ishak KG, Purcell RH. The complete nucleotide sequence of a pre-core mutant of hepatitis B virus implicated in fulminant hepatitis and its biological characterization in chimpanzees. *Virology* 1993;**194**(1):263-276.
- 466. Ogata N, Ostberg L, Ehrlich PH, Wong DC, Miller RH, Purcell RH. Markedly prolonged incubation period of hepatitis B in a chimpanzee passively immunized with a human

- monoclonal antibody to the a determinant of hepatitis B surface antigen. *PNAS USA* 1993;**90**(7):3014-3018.
467. Purcell RH. Control of hepatitis A by inactivated vaccines: unanswered questions and unresolved issues. *J Hepatol* 1993;**18 Suppl 2**:S61-64.
  468. Purcell RH. The discovery of the hepatitis viruses. *Gastroenterology* 1993;**104**(4):955-963.
  469. Purcell RH. The genetic heterogeneity of hepatitis C virus. *J Prevent Med & Hyg* 1993;**34**:69-72.
  470. Purcell RH. Hepatitis C virus: genetic and biological heterogeneity. In Mushahwar IK, ed, *Viral Hepatitis: Proceedings of the 20th Anniversary of Austria Symposium*, 1993:79-87.
  471. Shimizu YK, Purcell RH, Yoshikura H. Correlation between the infectivity of hepatitis C virus *in vivo* and its infectivity *in vitro*. *PNAS USA* 1993;**90**(13):6037-6041.
  472. Tedeschi V, Purcell RH and Emerson SU. Partial characterization of hepatitis A viruses from three intermediate passage levels of a series resulting in adaptation to growth in cell culture and attenuation of virulence. *J Med Virol* 1993;**39**(1):16-22.
  473. Tsarev SA, Emerson SU, Tsareva TS, Yarbough PO, Lewis M, Govindarajan S, Reyes GR, Shapiro M, Purcell RH. Variation in course of hepatitis E in experimentally infected cynomolgus monkeys. *J Infect Dis* 1993;**167**(6):1302-1306.
  474. Tsarev SA, Tsareva TS, Emerson SU, Kapikian AZ, Ticehurst J, London W, Purcell RH. ELISA for antibody to hepatitis E virus (HEV) based on complete open-reading frame-2 protein expressed in insect cells: identification of HEV infection in primates. *J Infect Dis* 1993;**168**(2):369-378.
  475. Yin S, Tsarev SA, Purcell RH, Emerson SU. Partial sequence comparison of eight new Chinese strains of hepatitis E virus suggests the genome sequence is relatively stable. *J Med Virol* 1993;**41**(3):230-241.

#### 1994

476. Arankalle VA, Chadha MS, Tsarev SA, Emerson SU, Risbud AR, Banerjee K, Purcell RH. Seroepidemiology of water-borne hepatitis in India and evidence for a third enterically-transmitted hepatitis agent. *PNAS USA* 1994;**91**(8):3428-3432.
477. Bryan JP, Tsarev SA, Iqbal M, Ticehurst J, Emerson S, Ahmed A, Duncan J, Rafiqui AR, Malik IA, Purcell RH. Epidemic hepatitis E in Pakistan: patterns of serologic response and evidence that antibody to hepatitis E virus protects against disease. *J Infect Dis* 1994;**170**(3):517-521.
478. Bukh J, Purcell RH, Miller RH. Sequence analysis of the core gene of 14 hepatitis C virus genotypes. *PNAS USA* 1994;**91**(17):8239-8243.
479. Emerson SU, Lewis M, Govindarajan S, Shapiro M, Moskal T, Purcell RH. *In vivo* transfection by hepatitis A virus synthetic RNA. *Arch Virol Suppl* 1994;**9**:205-209.
480. Farci P, Alter HJ, Wong DC, Miller RH, Govindarajan S, Engle R, Shapiro M, Purcell RH. Prevention of hepatitis C virus infection in chimpanzees after antibody-mediated *in vitro* neutralization. *PNAS USA* 1994;**91**(16):7792-7796.
481. Funkhouser AW, Purcell RH, D'Hondt E, Emerson SU. Attenuated hepatitis A virus: genetic determinants of adaptation to growth in MRC-5 cells. *J Virol* 1994;**68**(1):148-157.
482. Funkhouser AW, Purcell RH, Emerson SU. Mutations in the 5' -noncoding, 2C, and P3 regions of the genome increase the efficiency of hepatitis A virus growth in MRC-5 cells.

- In Brown F, Chanock RM, Ginsberg HS, Norrby E, eds., *Vaccines 94: Modern Approaches to New Vaccines Including Prevention of AIDS*. Cold Spring Harbor, Cold Spring Harbor Laboratory Press 1994:345-349.
483. Lai ME, Mazzoleni AP, Argioli F, De Virgilis S, Balestrieri A, Purcell RH, Cao A, Farci P. Hepatitis C virus in multiple episodes of acute hepatitis in polytransfused thalassaemic children. *Lancet* 1994;**343**(8894):388-390.
  484. Mannucci PM, Gdovin S, Gringeri A, Colombo M, Mele A, Schinaia N, Ciavarella N, Emerson SU, Purcell RH. Transmission of hepatitis A to patients with hemophilia by factor VIII concentrates treated with organic solvent and detergent to inactivate viruses. The Italian Collaborative Group [see comments]. *Ann Intern Med* 1994;**120**(1):1-7.
  485. Ogata N, Miller RH, Ishak KG, Zanetti AR, Purcell RH. Genetic and biological characterization of two hepatitis B variants: a precore mutant implicated in fulminant hepatitis and a surface mutant resistant to immunoprophylaxis. In Nishioka K, Suzuki H, Mishiro S, Oda T, eds, *Viral Hepatitis and Liver Disease (Proceedings of the International Symposium on Viral Hepatitis and Liver Disease: Molecules Today, More Cures Tomorrow)*. New York, NY, Springer-Verlag 1994:238-242.
  486. Purcell RH. Hepatitis C virus. In, *Encyclopedia of Virology*. Academic Press Limited, 1994:569-574.
  487. Purcell RH. Hepatitis C virus: historical perspective and current concepts. *FEMS Microbiol Rev* 1994;**14**(3):181-191.
  488. Purcell RH. The hepatitis viruses: an overview. In Nishioka K, Suzuki H, Mishiro S, Oda T, eds, *Viral Hepatitis and Liver Disease (Proceedings of the International Symposium on Viral Hepatitis and Liver Disease: Molecules Today, More Cures Tomorrow)*. New York, Springer-Verlag 1994:19-21.
  489. Purcell RH. Hepatitis viruses: changing patterns of human disease [published erratum appears in *PNAS USA* 1994 Sep 13;**91**(19):9195]. *PNAS USA* 1994;**91**(7):2401-2406.
  490. Purcell RH, Mannucci PM, Gdovin S, Gringeri A, Colombo M, Mele A, Schinaia N, Ciavarella N, Emerson SU. Virology of the hepatitis A epidemic in Italy. *Vox Sang* 1994;**67 Suppl 4**:2-7; Discussion 24-26.
  491. Shimizu YK, Hijikata M, Iwamoto A, Alter HJ, Purcell RH, Yoshikura H. Neutralizing antibodies against hepatitis C virus and the emergence of neutralization escape mutant viruses. *J Virol* 1994;**68**(3):1494-1500.
  492. Shimizu YK, Hijikata M, Iwamoto A, Purcell RH, Yoshikura H. Useful markers for predicting in vivo infectivity of hepatitis C virus. In Nishioka K, Suzuki H, Mishiro S, Oda T, eds, *Viral Hepatitis and Liver Disease (Proceedings of the International Symposium on Viral Hepatitis and Liver Disease: Molecules Today, More Cures Tomorrow)*. New York, Springer-Verlag 1994:115-117.
  493. Sugata F, Chen HS, Kaneko S, Purcell RH, Miller RH. Analysis of the X gene promoter of woodchuck hepatitis virus. *Virology* 1994;**205**(1):314-320.
  494. Tappero G, Natoli G, Anfossi G, Rosina F, Negro F, Smedile A, Bonino F, Angeli A, Purcell RH, Rizzetto M. Expression of the c-myc protooncogene product in cells infected with the hepatitis delta virus. *Hepatology* 1994;**20**(5):1109-1114.
  495. Tsarev SA, Tsareva TS, Emerson SU, Govindarajan S, Shapiro M, Gerin JL, Purcell RH. Successful passive and active immunization of cynomolgus monkeys against hepatitis E. *PNAS USA* 1994;**91**(21):10198-10202.
  496. Tsarev SA, Tsareva TS, Emerson SU, Yarbough PO, Legters LJ, Moskal T, Purcell RH.

Infectivity titration of a prototype strain of hepatitis E virus in cynomolgus monkeys. *J Med Virol* 1994;**43**(2):135-142.

497. Yin S, Purcell RH, Emerson SU. A new Chinese isolate of hepatitis E virus: comparison with strains recovered from different geographical regions. *Virus Genes* 1994;**9**(1):23-32.

## 1995

498. Arankalle VA, Tsarev SA, Chadha MS, Alling DW, Emerson SU, Banerjee K, Purcell RH. Age-specific prevalence of antibodies to hepatitis A and E viruses in Pune, India, 1982 and 1992. *J Infect Dis* 1995;**171**(2):447-450.
499. Bukh J, Miller RH, Purcell RH. Biology and genetic heterogeneity of hepatitis C virus. *Clin Exp Rheumatol* 1995;**13 Suppl 13**:S3-7.
500. Bukh J, Miller RH, Purcell RH. Defining the genotypes of hepatitis C virus and their epidemiology. *INTER-action* 1995;**3**:10-15.
501. Bukh J, Miller RH, Purcell RH. Genetic heterogeneity of hepatitis C virus: quasispecies and genotypes. *Semin Liver Dis* 1995;**15**(1):41-63.
502. Bukh J, Miller RH, Purcell RH. Genetic heterogeneity of the hepatitis C virus. In Kobayashi K, Purcell RH, Shimotohno K, Tabor E, eds, *Hepatitis C Virus and its Involvement in the Development of Hepatocellular Carcinoma (Proceedings of the 25th International Symposium of the Princess Takamatsu Cancer Research Fund, Tokyo, 1994)*. New Jersey, Princeton Scientific Publishing Co., Inc. 1995:75-92.
503. D'Hondt E, Purcell RH, Emerson SU, Wong DC, Shapiro M and Govindarajan S. Efficacy of an inactivated hepatitis A vaccine in pre- and postexposure conditions in marmosets. *J Infect Dis* 1995;**171 Suppl 1**:S40-43.
504. Farci P, Orgiana G, Purcell RH. Immunity elicited by hepatitis C virus. *Clin Exp Rheumatol* 1995;**13 Suppl 13**:S9-12.
505. Ghabrah TM, Strickland GT, Tsarev S, Yarbough P, Farci P, Engle R, Emerson S, Purcell R. Acute viral hepatitis in Saudi Arabia: seroepidemiological analysis, risk factors, clinical manifestations, and evidence for a sixth hepatitis agent. *Clin Infect Dis* 1995;**21**(3):621-627.
506. Hoofnagle JH, Purcell RH, Gerin JL. Introduction to the hepatitis viruses. In Lennette EH, Lennette DA, Lennette ET, eds, *Diagnostic Procedures for Viral, Rickettsial and Chlamydial Infections*. Washington, DC, American Public Health Association 1995:327-329.
507. Purcell RH. Hepatitis C and its sequelae: the biology of hepatitis C virus and implications for its control. In Kobayashi K, Purcell RH, Shimotohno K, Tabor E, eds, *Hepatitis C Virus and its Involvement in the Development of Hepatocellular Carcinoma (Proceedings of the 25th International Symposium of the Princess Takamatsu Cancer Research Fund, Tokyo, 1994)*. New Jersey, Princeton Scientific Publishing Co., Inc. 1995:1-14.
508. Purcell RH. Hepatitis viruses: changing patterns of human disease. In Roizman B, ed., *Infectious Diseases in an Age of Change: The Impact of Human Ecology and Behavior on Disease Transmission*. Washington, DC, National Academy Press 1995:59-75.
509. Purcell RH. Viral hepatitis and hepatitis vaccines. In, *Strategies for Pediatric Vaccines: Conventional and Molecular Approaches. The Report of the 104th Ross Conference on Pediatric Research*. Columbus, OH, Ross Products Division, Abbott Laboratories, 1995:124-132.
510. Purcell RH, Hoofnagle JH, Gerin JL. Parenterally transmitted hepatitis. In Lennette EH, Lennette DA and Lennette ET, eds, *Diagnostic Procedures for Viral, Rickettsial and*

*Chlamydial Infections*. Washington, DC, American Public Health Association 1995:331-359.

511. Schultheiss T, Emerson SU, Purcell RH, Gauss-Muller V. Polyprotein processing in echovirus 22: a first assessment. *Biochem Biophys Res Commun* 1995;**217**(3):1120-1127.
512. Tsarev SA, Tsareva TS, Emerson SU, Purcell RH, Govindarajan S, Shapiro M, Gerin JL. Successful passive and active immunization of cynomolgus monkeys against hepatitis E. In Chanock RM, Brown F, Ginsberg HS, Norrby E, eds, *Vaccines 95: Molecular Approaches to the Control of Infectious Diseases*. Cold Spring Harbor, Cold Spring Harbor Laboratory Press 1995:263-266.
513. Tsarev SA, Tsareva TS, Emerson SU, Rippey MK, Zack P, Shapiro M, Purcell RH. Experimental hepatitis E in pregnant rhesus monkeys: failure to transmit hepatitis E virus (HEV) to offspring and evidence of naturally acquired antibodies to HEV. *J Infect Dis* 1995;**172**(1):31-37.
514. Xu ZY, Duan SC, Margolis HS, Purcell RH, Ou-Yang PY, Coleman PJ, Zhuang YL, Xu HF, Qian SG, Zhu QR. Long-term efficacy of active postexposure immunization of infants for prevention of hepatitis B virus infection. United States-People's Republic of China Study Group on Hepatitis B. *J Infect Dis* 1995;**171**(1):54-60.

## 1996

515. Bukh J, Purcell RH. Genomic structure and variability of hepatitis C virus. *Antiviral Therapy* 1996;**1**(3):39-45.
516. Cohen JI, Moskal T, Shapiro M, Purcell RH. Varicella in chimpanzees. *J Med Virol* 1996;**50**:289-292.
517. Davis HL, McCluskie MJ, Gerin JL, Purcell RH. DNA vaccine for hepatitis B: evidence for immunogenicity in chimpanzees and comparison with other vaccines. *PNAS USA* 1996;**93**(14):7213-7218.
518. Emerson SU, Tsarev SA, Govindarajan S, Shapiro M, Purcell RH. A simian strain of hepatitis A virus, AGM-27, functions as an attenuated vaccine for chimpanzees. *J Infect Dis* 1996;**173**(3):592-597.
519. Farci P, Alter HJ, Shimoda A, Govindarajan S, Cheung LC, Melpolder JC, Sacher RA, Shih JW, Purcell RH. Hepatitis C virus-associated fulminant hepatic failure. *N Engl J Med* 1996;**335**(9):631-634.
520. Farci P, Peddis G, Balestrieri A, Purcell RH. Hepatitis C virus: genetic heterogeneity and immunity. *FORUM Trends in Experimental and Clinical Medicine* 1996;**6**:177-185.
521. Farci P, Shimoda A, Wong D, Cabezon T, De Gioannis D, Strazzera A, Shimizu Y, Shapiro M, Alter HJ, Purcell RH. Prevention of hepatitis C virus infection in chimpanzees by hyperimmune serum against the hypervariable region 1 of the envelope 2 protein. *PNAS USA* 1996;**93**(26):15394-15399.
522. Funkhouser AW, Raychaudhuri G, Purcell RH, Govindarajan S, Elkins R, Emerson SU. Progress toward the development of a genetically engineered attenuated hepatitis A virus vaccine. *J Virol* 1996;**70**(11):7948-7957.
523. Heller T, Yin S, Tsarev SA, Purcell RH, Emerson SU. False-positive serologic test resulting from a probable yeast infection in a chimpanzee. *Clin Diagn Lab Immunol* 1996;**3**(5):614-615.
524. Purcell RH. Hepatitis E virus. In Fields BN, Knipe DM, Howley PM, et al, *Field's Virology*. New York, Raven Press, Ltd. 1996:2831-2843.
525. Purcell RH, Emerson SU. Hepatitis A and E: molecular biology. In Schmid R, Bianchi L,



- Blum HE, Gerok W, Maier KP, Stalder GA, eds., *Acute and Chronic Liver Diseases: Molecular Biology and Clinics (Proceedings of the 87th Falk Symposium)*, 1996:3-11.
526. Purcell RH, Gerin JL. Hepatitis delta virus. In Fields BN, Knipe DM, Howley PM, et al., eds, *Field's Virology*. New York, Raven Press, Ltd. 1996:2819-2829.
  527. Purcell RH, Tsarev S. Seroepidemiology of hepatitis E. In Buisson Y, Coursaget P, Kane M, eds, *Enterically-Transmitted Hepatitis Viruses (Proceedings of the International Symposium on Enterically-Transmitted Hepatitis Viruses, Paris, France, October 1995)*. Joué-lès-Tours, France, La Simarre 1996:153-166.
  528. Shimizu YK, Feinstone SM, Kohara M, Purcell RH, Yoshikura H. Hepatitis C virus: detection of intracellular virus particles by electron microscopy [see comments]. *Hepatology* 1996;**23**(2):205-209.
  529. Shimizu YK, Igarashi H, Kiyohara T, Cabezon T, Farci P, Purcell RH, Yoshikura H. A hyperimmune serum against a synthetic peptide corresponding to the hypervariable region 1 of hepatitis C virus can prevent viral infection in cell cultures. *Virology* 1996;**223**(2):409-412.
  530. Tellier R, Bukh J, Emerson SU, Miller RH, Purcell RH. Long PCR and its application to hepatitis viruses: amplification of hepatitis A, hepatitis B, and hepatitis C virus genomes. *J Clin Microbiol* 1996;**34**(12):3085-3091.
  531. Tellier R, Bukh J, Emerson SU, Purcell RH. Amplification of the full-length hepatitis A virus genome by long reverse transcription-PCR and transcription of infectious RNA directly from the amplicon. *PNAS USA* 1996;**93**(9):4370-4373.
  532. Tsarev SA, Tsareva TS, Emerson SU, Govindarajan S, Shapiro M, Gerin JL, Robinson R, Gorbalenya AE, Purcell RH. Prospects for prevention of hepatitis E. In Buisson Y, Coursaget P, Kane M, eds, *Enterically-Transmitted Hepatitis Viruses (Proceedings of the International Symposium on Enterically-Transmitted Hepatitis Viruses, Paris, France, October 1995)*. Joué-lès-Tours, France, La Simarre 1996:373-383.
  533. Yanagi M, Bukh J, Emerson SU, Purcell RH. Contamination of commercially available fetal bovine sera with bovine viral diarrhea virus genomes: implications for the study of hepatitis C virus in cell cultures. *J Infect Dis* 1996;**174**(6):1324-1327.
  534. Yu M, Miller RH, Emerson S, Purcell RH. A hydrophobic heptad repeat of the core protein of woodchuck hepatitis virus is required for capsid assembly. *J Virol* 1996;**70**(10):7085-7091.

## 1997

535. Bukh J, Apgar C, Purcell RH. Natural history of GBV-A and GBV-B in animal models: discovery of indigenous Flaviviridae-like viruses in several species of New World monkeys. In Rizzetto M, Purcell RH, Gerin JL, Verme G, eds, *Viral Hepatitis and Liver Disease, (Proceedings of IX Triennial International Symposium on Viral Hepatitis and Liver Disease)*. Turin, Edizioni Minerva Medica 1997: 392-395.
536. Bukh J, Emerson SU, Purcell RH. Genetic heterogeneity of hepatitis C virus and related viruses. In Rizzetto M, Purcell RH, Gerin JL, Verme G, eds, *Viral Hepatitis and Liver Disease (Proceedings of IX Triennial International Symposium on Viral Hepatitis and Liver Disease)*. Turin, Edizioni Minerva Medica 1997:167-175.
537. Chatterjee R, Tsarev S, Pillot J, Coursaget P, Emerson SU, Purcell RH. African strains of hepatitis E virus that are distinct from Asian strains. *J Med Virol* 1997;**53**(2):139-144.
538. Chengalvala MV, Bhat BM, Bhat RA, Dheer SK, Lubeck MD, Purcell RH, Murthy KK. Replication and immunogenicity of Ad7-, Ad4-, and Ad5-hepatitis B virus surface

- antigen recombinants, with or without a portion of E3 region, in chimpanzees. *Vaccine* 1997;**15**(3):335-339.
539. (Deleted)
540. Farci P, Bukh J, Purcell RH. The quasispecies of hepatitis C virus and the host immune response. *Springer Semin Immunopathol* 1997;**19**(1):5-26.
541. Farci P, Purcell RH. Models of the role of the humoral immune response in the persistence and pathogenesis of chronic hepatitis C virus infection. In Aroyo V, Bosch J, Bruguera M, Rodes J, eds, *Therapy in Liver Diseases. The Pathophysiological Basis of Therapy*. Barcelona, Spain, Masson S.A. Rhona General Mitre 149, 1997:127-131.
542. Farci P, Shimoda A, Orgiana G, Coiana A, Purcell RH. Immunity to HCV in the chimpanzee model. In Rizzetto M, Purcell RH, Gerin JL, Verme G, eds, *Viral Hepatitis and Liver Disease, Proceedings of the IX Triennial International Symposium on Viral Hepatitis and Liver Disease*. 1997:200-204.
543. Forns X, Bukh J, Purcell RH, Emerson SU. How Escherichia coli can bias the results of molecular cloning: preferential selection of defective genomes of hepatitis C virus during the cloning procedure. *PNAS USA* 1997;**94**(25):13909-13914.
544. Forns X, Tan D, Alter HJ, Purcell RH, Bukh J. Evaluation of commercially available and in-house reverse transcription-PCR assays for detection of hepatitis G virus or GB virus C. *J Clin Microbiol* 1997;**35**(10):2698-2702.
545. Funkhouser AW, et al. Mutations in the 5' untranslated region of hepatitis A virus have a parallel impact on cell type-specific viral translation and growth. *Nucleic Acids Symp Ser* 1997;**36**:129-131.
546. Houghton M, Choo QL, Chien D, Kuo G, Weiner A, Coates S, Cousens L, Wininger M, Selby M, Ralston R, Berger K, Dong C, Crawford K, Kansopon O, Chin M, Wong S, Tabrizi-Wright A, Purcell RH, Muchmore E, Morandi P, Rosa D, Abrignani S. Development of an HCV vaccine. In Rizzetto M, Purcell RH, Gerin JL, Verme G, eds *Viral Hepatitis and Liver Disease (Proceedings of IX Triennial International Symposium on Viral Hepatitis and Liver Disease)*. Turin, Edizioni Minerva Medica 1997: 657-659.
547. Mast EE, Alter MJ, Holland PV, Purcell RH. Evaluation of assays for antibody to hepatitis E virus by serum panel. (For the Hepatitis E Virus Antibody Serum Panel). In Rizzetto M, Purcell RH, Gerin JL, Verme G, eds, *Viral Hepatitis and Liver Disease (Proceedings of IX Triennial International Symposium on Viral Hepatitis and Liver Disease)*. Turin, Edizioni Minerva Medica 1997:327-330.
548. Meng XJ, Purcell RH, Halbur PG, Lehman JR, Webb DM, Tsareva TS, Haynes JS, Thacker BJ, Emerson SU. A novel virus in swine is closely related to the human hepatitis E virus. *PNAS USA* 1997;**94**(18):9860-9865.
549. Morris TS, Frommann S, Shechosky S, Lowe C, Lall MS, Gauss-Müller V, Purcell RH, Emerson SU, Vederas JC, Malcolm BA. *In vitro and ex vivo* inhibition of hepatitis A virus 3C proteinase by a peptidyl monofluoromethyl ketone. In, *Bioorganic & Med Chem*. Great Britain, Elsevier Sciences Ltd, 1997;**5**:797-807.
550. Ogata N, Zanetti AR, Yu M, Miller RH, Purcell RH. Infectivity and pathogenicity in chimpanzees of a surface gene mutant of hepatitis B virus that emerged in a vaccinated infant. *J Infect Dis* 1997;**175**(3):511-523.
551. Purcell RH. Chronic infections caused by S-gene neutralization escape variants of HBV: reality or myth? In Arroyo V, Bosch J, Bruguera M, Rodes J, Masson SA, eds, *Therapy in Liver Diseases. The Pathophysiological Basis of Therapy*. Barcelona, Spain, Rhona

- General Mitre 149, 1997.
552. Purcell RH. Hepatitis vaccines: an introduction. In Rizzetto M, Purcell RH, Gerin JL, Verme G, eds, *Viral Hepatitis and Liver Disease, (Proceedings of the IX Triennial International Symposium on Viral Hepatitis and Liver Disease)*. Turin, Edizioni Minerva Medica 1997:621-623.
  553. Purcell RH. The Hepatitis C Virus: Overview. *Hepatology* 1997;11S-14S.
  554. Raychaudhuri G, Govindarajan S, Purcell RH, Emerson SU. Studies toward development of a live attenuated vaccine for HAV using chimeras between human (HM-175) and simian (AGM-27) strains of HAV. In Rizzetto M, Purcell RH, Gerin JL, Verme G, eds, *Viral Hepatitis and Liver Disease, (Proceedings of the IX Triennial International Symposium on Viral Hepatitis and Liver Disease)*. Turin, Edizioni Minerva Medica 1997:627-630.
  555. Shimizu YK, Igarashi H, Kanematu T, Fujiwara K, Wong DC, Purcell RH, Yoshikura H. Sequence analysis of the hepatitis C virus genome recovered from serum, liver, and peripheral blood mononuclear cells of infected chimpanzees. *J Virol* 1997;71(8):5769-5773.
  556. Shimizu YK, Nakajima N, Igarashi H, Kiyohara T, Purcell RH, Yoshikura H. Characterization of hepatitis C virus grown in cell cultures. In Rizzetto M, Purcell RH, Gerin JL, Verme G, eds, *Viral Hepatitis and Liver Disease, (Proceedings of the IX Triennial International Symposium on Viral Hepatitis and Liver Disease)*. Turin, Edizioni Minerva Medica 1997:205-208.
  557. Shimoda A, Purcell RH, Miller RH. New transcripts within the X gene of mammalian hepadnaviruses. In Rizzetto M, Purcell RH, Gerin JL, Verme G, eds, *Viral Hepatitis and Liver Disease, (Proceedings of the IX Triennial International Symposium on Viral Hepatitis and Liver Disease)*. Turin, Edizioni Minerva Medica 1997:98-103.
  558. Stewart DR, Morris TS, Purcell RH, Emerson SU. Detection of antibodies to the nonstructural 3C proteinase of hepatitis A virus. *J Infect Dis* 1997;176(3):593-601.
  559. Tellier R, Bukh J, Emerson SU, Purcell RH. Amplification of the full-length hepatitis A virus by long RT-PCR and generation of infectious RNA directly from the amplicon. In Rizzetto M, Purcell RH, Gerin JL, Verme G, eds, *Viral Hepatitis and Liver Disease, (Proceedings of the 1996 International Symposium on Viral Hepatitis and Liver Disease)*. Turin, Edizioni Minerva Medica 1997:48-50.
  560. Thomas DL, Yarbough PO, Vlahov D, Tsarev SA, Nelson KE, Saah AJ, Purcell RH. Seroreactivity to hepatitis E virus in areas where the disease is not endemic. *J Clin Microbiol* 1997;35(5):1244-1247.
  561. Tsarev SA, Tsareva TS, Emerson SU, Govindarajan S, Shapiro M, Gerin JL, Purcell RH. Recombinant vaccine against hepatitis E: dose response and protection against heterologous challenge. *Vaccine* 1997;15(17-18):1834-1838.
  562. Tsarev SA, Tsareva TS, Emerson SU, Govindarajan S, Shapiro M, Gerin JL, Robinson R, Purcell RH. Recombinant vaccine against hepatitis E. In Rizzetto M, Purcell RH, Gerin JL and Verme G, eds., *Viral Hepatitis and Liver Disease, (Proceedings of the 1996 International Symposium on Viral Hepatitis and Liver Disease)*. Turin, Edizioni Minerva Medica 1997: 648-649.
  563. Villano SA, Nelson KE, Vlahov D, Purcell RH, Saah AJ, Thomas DL. Hepatitis A among homosexual men and injection drug users: More evidence for vaccination. *Clin Infect Dis* 1997;25(3):726-728.

564. Yanagi M, Purcell RH, Emerson SU, Bukh J. Transcripts from a single full-length cDNA clone of hepatitis C virus are infectious when directly transfected into the liver of a chimpanzee. *PNAS USA* 1997;**94**(16):8738-8743.
565. Yu M, Miller RH, Emerson SU, Purcell RH. A hydrophobic heptad repeat of the core protein of woodchuck hepatitis virus is required for capsid assembly. In Rizzetto M, Purcell RH, Gerin JL, Verme G, eds, *Viral Hepatitis and Liver Disease, (Proceedings of the 1996 International Symposium on Viral Hepatitis and Liver Disease)*. Turin, Edizioni Minerva Medica 1997:94-97.

## 1998

566. Arankalle VA, Chadha MS, Dama BM, Tsarev SA, Purcell RH, Banerjee K. Role of immune serum globulins in pregnant women during an epidemic of hepatitis E. *J Viral Hepat* 1998;**5**(3):199-204.
567. Berton R, Sette A, Sidney J, Guidotti L, Shapiro M, Purcell R, Chisari FV. Human class I supertypes and CTL repertoires extend to chimpanzees. *J Immunol* 1998;**444**:7-4455.
568. Bukh J, Kim JP, Govindarajan S, Apgar CL, Fong SK, Wages J, Jr., Yun AJ, Shapiro M, Emerson SU, Purcell RH. Experimental infection of chimpanzees with hepatitis G virus and genetic analysis of the virus. *J Infect Dis* 1998;**177**(4):855-862.
569. Bukh J, Purcell RH. Genomic structure and variability of hepatitis C virus. Therapies for viral Hepatitis, Raymond F. Schinazi, Jean-Pierre Sommadossi, Howard C. Thomas, eds, 1998 International Medical Press, pp. 133-138.
570. Chen HS, Miller RH, Hornbuckle WE, Tennant BC, Cote PJ, Gerin JL, Purcell RH. Titration of recombinant woodchuck hepatitis virus DNA in adult woodchucks. *J Med Virol* 1998;**54**(2):92-94.
571. Farci P, Purcell RH. Natural history and experimental models. Section IV: Hepatitis C Virus. In Zuckerman AJ, Thomas HC, eds. *Viral Hepatitis*. Second edition, London, England, Churchill Livingstone 1998:285-308.
572. Ghabrah TM, Tsarev S, Yarbough P, Emerson S, Strickland GT, Purcell RH. Comparison of tests for antibody to hepatitis E virus. *J Med Virol* 1998;**55**(2):134-137.
573. Mast EE, Alter MJ, Holland PV, Purcell RH. Evaluation of assays for antibody to hepatitis E virus by a serum panel. *Hepatology* 1998;**27**(3):857-861.
574. Meng XJ, Halbur PG, Haynes JS, Tsareva TS, Bruna JD, Royer RL, Purcell RH, Emerson SU. Experimental infection of pigs with the newly identified swine hepatitis E virus (swine HEV), but not with human strains of HEV. *Arch Virol* 1998;**143**(7):1405-1415.
575. Meng XJ, Halbur PG, Shapiro MS, Govindarajan S, Bruna JD, Mushahwar IK, Purcell RH, Emerson SU. Genetic and experimental evidence for cross-species infection by swine hepatitis E virus. *J Virol* 1998; **72**(12):9714-9721.
576. Pina S, Jofre J, Emerson SU, Purcell RH, Girones R. Characterization of a strain of infectious hepatitis E virus isolated from sewage in an area where hepatitis E is not endemic. *Appl Environ Microbiol* 1998;**64**(11):4485-4488.
577. Raychaudhuri G, Govindarajan S, Shapiro M, Purcell RH, Emerson SU. Utilization of chimeras between human (HM-175) and simian (AGM-27) strains of hepatitis A virus to study the molecular basis of virulence. *J Virol* 1998; **72**(9):7467-7475.
578. Robinson RA, Burgess WH, Emerson SU, Leibowitz RS, Sosnovtseva SA, Tsarev S, Purcell RH. Structural characterization of recombinant hepatitis E virus ORF2 proteins in baculovirus-infected insect cells. *Protein Expression and Purification*

- 1998;12(1):75-84.
579. Shimizu YK, Igarashi H, Kiyohara T, Shapiro M, Wong DC, Purcell RH, Yoshikura H. Infection of a chimpanzee with hepatitis C virus grown in cell culture. *J Gen Virol* 1998;79(Pt 6):1383-1386.
  580. Shimoda A, Sugata F, Chen H, Miller RH, Purcell RH. Evidence for a bidirectional promoter complex within the X gene of woodchuck hepatitis virus. *Virus Res* 1998;56:25-39.
  581. Smedile A, Casey JL, Cote PJ, Durazzo M, Lavezzo B, Purcell RH, Rizzetto M, Gerin JL. Hepatitis D viremia following orthotopic liver transplantation involves a typical HDV virion with a hepatitis B surface antigen envelope. *Hepatology* 1998;27(6):1723-1729.
  582. Yanagi M, St. Claire M, Shapiro M, Emerson SU, Purcell RH, Bukh J. Transcripts of a chimeric cDNA clone of hepatitis C virus genotype 1b are infectious *in vivo*. *Virology* 1998;244(1):161-172.
  583. Yu M, Emerson SU, Cote P, Shapiro M, Purcell RH. The GDPAL region of the Pre-S1 envelope protein is important for morphogenesis of woodchuck hepatitis virus. *Hepatology* 1998;27(5):1408-1414.

#### 1999

584. Arankalle VA, Paranjape S, Emerson SU, Purcell RH, Walimbe AM. Phylogenetic analysis of hepatitis E virus isolates from India (1976-1993). *J Gen Virol* 1999;80(Pt7):1691-1700.
585. (Deleted)
586. Farci P, Munoz SJ, Shimoda A, Govindarajan S, Wong DC, Coiana A, Peddis G, Rubin R, Purcell RH. Experimental transmission of hepatitis C virus-associated fulminant hepatitis to a chimpanzee. *J Infect Dis* 1999;179(4):1007-1011.
587. Forns X, Emerson SU, Tobin GJ, Mushahwar IK, Purcell RH, Bukh J. DNA immunization of mice and macaques with plasmids encoding hepatitis C virus envelope E2 protein expressed intracellularly and on the cell surface. *Vaccine* 1999;17:1992-2002.
588. Forns X, Hegerich P, Darnell A, Emerson SU, Purcell RH, Bukh J. High prevalence of TT virus (TTV) infection in patients on maintenance hemodialysis: frequent mixed infections with different genotypes and lack of evidence of associated liver disease. *J Med Virol* 1999;59:313-317.
589. Forns X, Purcell RH, Bukh J. Quasispecies in viral persistence and pathogenesis of hepatitis C virus. *Trends in Microbiology* 1999;7(10):402-410.
590. Funkhouser AW, Schultz DE, Lemon SM, Purcell RH, Emerson SU. Hepatitis A virus translation is rate-limiting for virus replication in MRC-5 cells. *Virology* 1999;254(2):268-278.
591. Guidotti LG, Rochford R, Chung J, Shapiro M, Purcell R, Chisari FV. Viral clearance without destruction of infected cells during acute HBV infection. *Science* 1999;284:825-829.
592. Kabrane-Lazizi Y, Fine JB, Elm J, Glass GE, Higa H, Diwan A, Gibbs Jr CJ, Meng X-J, Emerson SU, Purcell RH. Evidence for widespread infection of wild rats with hepatitis E virus in the United States. *Am. J. Trop. Med. Hygiene* 1999;6(2):331-335.
593. Kabrane-Lazizi Y, Meng X-J, Purcell RH, Emerson SU. Evidence that the genomic RNA of hepatitis E virus is capped. *J Virol* 1999;73(10):8848-8850.
594. McCluskie MJ, Millan CLB, Gramzinski RA, Robinson HL, Santoro JC, Fuller JT, Widera G, Haynes JR, Purcell RH, David HL. Route and method of delivery of DNA

- vaccine influence immune responses in mice and non-human primates. *Molecular Medicine* 1999;5:287-300.
595. Meng X-J, Dea S, Engle RE, Friendship R, Lyoo YS, Sirinarumitr T, Uairong K, Wang D, Wong D, Yoo D, Zhang Y, Purcell RH, Emerson SU. Prevalence of antibodies to the hepatitis E virus in pigs from countries where hepatitis E is common or is rare in the human population. *J Med Virol* 1999;59:297-302.
  596. Ogata N, PJ Cote, AR Zanetti, RH Miller, M Shapiro, J Gerin, RH Purcell. Licensed recombinant hepatitis B vaccines protect chimpanzees against infection with the prototype surface gene mutant of hepatitis B virus. *Hepatology* 1999;30(3):779-786.
  597. Purcell RH. Hepatitis C virus (flaviviridae). In *Encyclopedia of Virology*. London, Academic Press Ltd. 1999:657-663.
  598. Purcell RH, Emerson SU. Hepatitis E virus. In G. Mandell, John Bennett, Raphael Dolin, eds., *Principles and Practice of Infectious Diseases*, Fifth edition. New York, Churchill Livingstone 1999:1958-1970.
  599. Purcell RH, Hollinger EB, Howard C, Alberti A, Kew M, Dusheiko G. Global surveillance and control of hepatitis C. *J Viral Hepatitis* 1999;6:35-47.
  600. Yanagi M, Purcell RH, Emerson SU, Bukh J. Hepatitis C virus: An infectious molecular clone of a second major genotype (2a) and lack of viability of intertypic 1a and 2a chimeras. *Virology* 1999;262(1):250-263.
  601. Yanagi M, St Claire M, Emerson SU, Purcell RH, Bukh J. In vivo analysis of the 3' untranslated region of the hepatitis C virus after in vitro mutagenesis of an infectious cDNA clone. *PNAS USA* 1999;96(5):2291-2295.

## 2000:

602. Allander T, Forns X, Emerson SU, Purcell RH, Bukh J. Hepatitis C virus envelope protein E2 binds to CD81 of tamarins. *Virology* 2000;277:358-367.
603. Cote PJ, Korba BE, Miller RH, Jacob JR, Baldwin BH, Hornbuckle WE, Purcell RH, Tennant BC, Gerin JL. Effects of age and viral determinants on chronicity as an outcome of experimental woodchuck hepatitis virus infection. *Hepatology* 2000;31(1):190-200.
604. Farci P, Purcell RH. Clinical significance of hepatitis C virus genotypes and quasispecies. *Semin Liver Dis* 2000;20(1):103-126.
605. Farci P, Shimoda A, Coiana A, Melpolder JC, Peddis G, Strazzera A, Chien DY, Balestrieri A, Purcell RH, Alter HJ. The outcome of acute hepatitis C predicted by the evolution of the viral quasispecies. *Science* 2000;288(5464):339-344.
606. Fix AD, Abdel-Hamid M, Purcell RH, Shehata MH, Abdel-Aziz F, Mikhail N, Sebai HE, Nafeh M, Habib M, Arthur RR, Emerson SU, Strickland GT. Prevalence of antibodies to hepatitis E in two rural Egyptian communities. *Am J Trop Med Hyg* 2000;62(4):519-523.
607. Forns X, Payette PJ, Ma X, Satterfield W, Eder kG, Mushahwar IK, Govindarajan S, Davis HL, Emerson SU, Purcell RH, Bukh J. Vaccination of chimpanzees with plasmid DNA encoding the hepatitis C virus (HCV) envelope E2 protein modified the infection after challenge with homologous monoclonal HCV. *Hepatology* 2000;32(3):618-625.
608. Forns X, Thimme R, Govindarajan S, Emerson SU, Purcell RH, Chisari FV, Bukh J. Hepatitis C virus lacking the hypervariable region 1 of the second envelope protein is infectious and causes acute resolving or persistent infection in chimpanzees. *PNAS USA* 2000;97(24):13318-13323.

609. Hartmann G, Weeratna RD, Ballas ZK, Payette P, Blackwell S, Suparto I, Rasmussen WL, Waldschmidt M, Sajuthi D, Purcell RH, Davis HL, Krieg AM. Delineation of a CpG phosphorothioate oligodeoxynucleotide for activating primate immune responses *in vitro* and *in vivo*. *J Immunol* 2000;**164**(3):1617-1624.
610. Heinz FX, Collett MS, Purcell RH, Gould EA, Howard CR, Houghton M, Moormann RJM, Rice CM, Thiel H-J. Flaviviridae. In van Regenmortel MHV, Fauquet CM, Bishop DHL, Carstens EB, Estes MK, Lemon SM, Maniloff J, Mayo MA, McGeoch DJ, Pringle CR, Wickner RB, eds. *Virus Taxonomy. Seventh Report of the International Committee on Taxonomy of Viruses*. Vienna, Institute of Virology 2000:859-878.
611. Hu X, Margolis HS, Purcell RH, Ebert J, Robertson BH. Identification of hepatitis B virus indigenous to chimpanzees. *PNAS USA* 2000;**97**(4):1661-1664.
612. Purcell RH. Hepatitis B virus mutants and efficacy of vaccination. *The Lancet* 2000;**356**:769.
613. Purcell RH. Hepatitis E virus. Syllabus for AASLD Postgraduate course, *Update on viral hepatitis*, 2000:62-67.
614. Purcell RH, Alter HJ, Dienstag JL. Non-A, non-B hepatitis. 1976 [classical article] *Yale J Biol Med* 2000 Jan-Dec;**73**(106):175-182.
615. Purcell RH, Emerson SU. Hepatitis E virus infection. *The Lancet* 2000;**355**(9203):578.
616. Romeo R, Hegerich P, Emerson SU, Colombo M, Purcell RH, Bukh J. High prevalence of TT virus (TTV) in naive chimpanzees and in hepatitis C virus infected humans: Frequent mixed infections and identification of new TTV genotypes in chimpanzees. *J Gen Virol* 2000;**81**:1001-1007.
617. Schofield DJ, Glanville J, Emerson SU, Purcell RH. Identification by phage display and characterization of two neutralizing chimpanzee monoclonal antibodies to the hepatitis E virus capsid protein. *J Virology* 2000;**74**(12):5548-5555.

## 2001:

618. Allander T, Emerson SU, Engle RE, Purcell RH, Bukh J. A virus discovery method incorporating DNA treatment and its application to the identification of two bovine parvovirus species. *PNAS* 2001;**98**(20):11609-11614.
619. Bryan JP, Reyes L, Hakre S, Gloria R, Kishore GM, Tillett W, Engle R, Tsarev S, Purcell RH. Epidemiology of acute hepatitis in the Stann Creek District of Belize, Central America: Acute Hepatitis in Belize. *Am J Trop Med and Hyg*, 2001;**65**(4):318-324.
620. Bukh J, Apgar CL, Govindarajan S, Emerson SU, Purcell RH. Failure to infect rhesus monkeys with hepatitis C virus strains of genotypes 1a, 2a or 3a. *J Viral Hepat* 2001;**8**:228-231.
621. Bukh J, Apgar CL, Govindarajan S, Purcell RH. Host range studies of GB virus-B hepatitis agent, the closest relative of hepatitis C virus in New World monkeys and chimpanzees. *J Med Virol* 2001;**65**(4):694-697.
622. Bukh J, Forns X, Emerson SU, Purcell RH. Studies of hepatitis C virus in chimpanzees and their importance for vaccine development. *Intervirology* 2001;**44**:132-142.
623. Emerson SU, Purcell RH. Recombinant vaccines for hepatitis E. (review) *Trends in Mol Med*, 2001;**7**(10):462-466
624. Emerson SU, Zhang M, Meng XJ, Nguyen H, St. Claire M, Govindarajan S, Huang YK, Purcell RH. Recombinant hepatitis E virus genomes infectious for primates: importance of capping and discovery of a cis-reactive element. *PNAS USA* 2001;**98**(26):15270-15275.

625. Feinstone SM, Kapikian AZ, Purcell RH, Alter HJ, Holland PV. Transfusion-associated hepatitis not due to viral hepatitis type A or B. *Rev Med Virol* 2001;**11**:3-9.
626. Gerin JL, Casey JL, Purcell RH. Hepatitis Delta Virus. Chapter 88. In Knipe D, Howley P, Griffin D, Lamb R, Martin M, Roizman B, Straus S, eds. *Fields Virology*. Fourth edition. Philadelphia, Lippincott, Williams and Wilkins 2001: 3037-305.
627. Halbur PG, Kosorndorkbua C, Gilbert C, Guenette D, Potters MB, Purcell RH, Emerson SU, Toth TE, Meng XJ. Comparative pathogenesis of infection of pigs with hepatitis E viruses recovered from a pig and a human. *J Clin Microbiol* 2001;**39**(3):918-923.
628. Kabrane-Lazizi Y, Emerson SU, Herzog C, Purcell RH. Detection of antibodies to HAV 3C proteinase in experimentally infected chimpanzees and in naturally infected children. *Vaccine* 2001 Apr 6;**19**(20-22):2878-2883.
629. Kabrane-Lazizi Y, Zhang M, Purcell RH, Miller KD, Davey RT, Emerson SU. Acute hepatitis caused by a novel strain of hepatitis E virus strain most closely related to the United States strains. *J Gen Virol* 2001Jul;**82**(Pt7):1687-1693.
630. Nam J, Bukh J, Purcell RH, Emerson SU. High-level expression of hepatitis C virus (HCV) structural proteins by a chimeric HCV/BVDV genome propagated as a BVDV pseudotype. *J Virol Methods* 2001 Sept;**97** (1-2):113-123.
631. Purcell RH, Emerson SU. Animal models of hepatitis A and E. (Review) *ILAR J* 2001;**42**(2):161-177.
632. Purcell RH, Emerson SU. Chapter 89, Hepatitis E virus. In Knipe D, Howley P, Griffin D, Lamb R, Martin M, Roizman B, Straus S, eds. *Fields Virology*. Fourth edition. Philadelphia, Lippincott, Williams and Wilkins 2001:3051-3061.
633. Zhang M, Purcell RH, Emerson SU. Identification of the 5' terminal sequence of the SAR-55 and MEX-14 strains of hepatitis E virus and confirmation that the genome is capped. *J Med Virol* 2001;**65**:293-295.

## 2002:

634. Bryan JP, Iqbal M, Tsarev S, Malik IA, Duncan JF, Ahmed A, Khan A, Khan A, Rafiqui AR, Purcell RH, Legters LJ. Epidemic of hepatitis E in a military unit in Abbottabad, Pakistan. *Am J Trop Med Hyg* 2002;**67**(6):662-228.
635. Bukh J, Forns X, Thimme R, Govindarajan S, Miller RH, Emerson SU, Chisari FV, Purcell RH. Analysis of the hypervariable region 1 of hepatitis C virus. In: Margolis HS, Alter MJ, Liang TJ, Dienstag JL, eds. *Viral Hepatitis and Liver Disease* (Proceedings of the 10th International Symposium on Viral Hepatitis and Liver Disease) Atlanta, International Medical Press 2002:330-335.
636. Bukh J, Thimme R, Govindarajan S, Forns X, Satterfield X, Eder G, Chang K-M, Yanagi M, Emerson SU, Chisari FV, Purcell RH. Monoclonal hepatitis C virus infection in chimpanzees. In: Margolis HS, Alter MJ, Liang TJ, Dienstag JL, eds. *Viral Hepatitis and Liver Disease* (Proceedings of the 10th International Symposium on Viral Hepatitis and Liver Disease), Atlanta, International Medical Press 2002:336-340.
637. Christensen PB, Engle RE, Jacobsen SE, Krarup HB, Georgsen J, Purcell RH. High prevalence of hepatitis E antibodies among Danish prisoners and drug users. *J Med Virol* 2002;**66**(1):49-55.
638. Emerson SU, Huang YK, Nguyen H, Brockington A, Govindarajan S, St. Claire M, Shapiro M, Purcell RH. Identification of VP1/2A and 2C as virulence genes of hepatitis A virus and demonstration of genetic instability of 2C. *J Virol* 2002;**76**(17):8551-8559.



639. Emerson SU, Miller KD, Davey RT, Purcell RH, Kabrane-Lazizi Y. Acute hepatitis caused by a hepatitis E virus strain related to the swine strain in a traveler returning from Thailand. In: Margolis HS, Alter MJ, Liang TJ, Dienstag JL, eds. *Viral Hepatitis and Liver Disease* (Proceedings of the 10th International Symposium on Viral Hepatitis and Liver Disease), Atlanta, International Medical Press 2002:116-118.
640. Engle RE, Yu C, Emerson Su, Meng X-J, Purcell RH. Hepatitis E virus (HEV) capsid antigens derived from viruses of human and swine origin are equally efficient for detecting anti-HEV by enzyme immunoassay. *J Clin Microb* 2002;**40**(12):4576-4580.
641. Farci P, Strazzer R, Alter HJ, Farci S, Degioannis D, Coiana A, Peddis G, Usai F, Serra G, Chessa L, Diaz G, Balestrieri A, Purcell RH. Early changes in hepatitis C viral quasispecies during interferon therapy predict the therapeutic outcome. *PNAS USA* 2002;**99**(5):3081-3086.
642. Forns X, Bukh J, Purcell RH. The challenge of developing a vaccine against hepatitis C virus. *J Hepatol* 2002;**37**:684-695.
643. Ma X, Forns X, Gutierrez R, Mushahwar IK, Wu T, Payette P, Bukh J, Purcell RH, Davis HL. DNA-based vaccination against hepatitis C virus (HCV): effect of expressing different forms of HCV E2 protein and use of CpG-optimized vectors in mice. *Vaccine* 2002;**20**:3263-3271.
644. Meng XJ, Wiseman B, Elvinger F, Duenette DK, Toth TE, Engle R, Emerson SU, Purcell RH. Prevalence of antibodies to hepatitis E virus in veterinarians working with swine and in normal blood donors in the United States and other countries. *J Clin Micro* 2002 Jan;**40**(1):117-122.
645. Purcell RH. Hepatitis E: prospects for immunoprophylaxis. In Margolis HS, Alter MJ, Liang TJ, Dienstag JL, eds. *Viral Hepatitis and Liver Disease. Proceedings of the 10<sup>th</sup> International Symposium on Viral Hepatitis and Liver Disease*. Atlanta, International Medical Press, Ltd. 2002:97-102.
646. Purcell RH, Emerson SU. Hepatitis A virus pathogenesis and attenuation. Chapter 33. In Semler BL, Wimmer E, editors, *Molecular Biology of Picornaviruses*. Washington, DC, ASM Press 2002;415-425.
647. Purcell RH, Wong DC, Shapiro M. Relative infectivity of hepatitis A virus by the oral and intravenous routes in 2 species of nonhuman primates. *J Infec Dis* 2002;**185**:1668-1671.
648. Schofield DJ, Rohwer-Nutter P, Emerson SU, Purcell RH. Identification of a major antigenic site on the HEV ORF2 protein (capsid) comprising neutralization and non-neutralization epitopes. In Margolis HS, Alter MJ, Liang TJ, Dienstag JL, eds. *Viral Hepatitis and Liver Disease. Proceedings of the 10<sup>th</sup> International Symposium on Viral Hepatitis and Liver Disease*. Atlanta, International Medical Press, Ltd. 2002:113-115.
649. Schofield DJ, Satterfield W, Emerson SU, Purcell RH. Four chimpanzee monoclonal antibodies isolated by phage display neutralize hepatitis A virus. *Virology* 2002;**292**:127-136.
650. Smith HM, Reporter R, Rood MP, Linscott AJ, Mascola LM, Hogrefe W, Purcell RH. Prevalence study of antibody to ratborne pathogens and other agents among patients using a free clinic in downtown Los Angeles. *J Infec Dis* 2002;**186**:1673-1676.
651. Su A, Pezacki JP, Wodicka L, Brideau AD, Supekova L, Thimme R, Wieland S, Bukh J, Purcell RH, Schultz PG, Chisari FV. Genomic analysis of the host response to hepatitis C virus infection. *PNAS USA* 2002;**99**(24):15669-15674.

652. Thimme R, Bukh J, Pemberton J, Guidotti LG, Purcell RH, Chisari FV. T cell responses and intrahepatic cytokine profiles in hepatitis B virus- and hepatitis C virus-infected chimpanzees. In Margolis HS, Alter MJ, Liang TJ, Dienstag JL, eds. *Viral Hepatitis and Liver Disease. Proceedings of the 10<sup>th</sup> International Symposium on Viral Hepatitis and Liver Disease*. Atlanta, International Medical Press, Ltd. 2002:175-178.
653. Thimme R, Bukh J, Spangenberg HC, Wieland S, Pemberton J, Steiger C, Govindarajan S, Purcell RH, Chisari FV. Viral and immunological determinants of hepatitis C virus clearance, persistence, and disease. *PNAS USA* 2002;**99**(24):15661-15668.
654. Zhang M, Emerson SU, Nguyen H, Engle R, Govindarajan S, Blackwelder WC, Gerin J, Purcell RH. Recombinant vaccine against hepatitis E: duration of protective immunity in rhesus macaques. *Vaccine* 2002;**20**:3285-3291.
655. Zhang M, Emerson SU, Nguyen H, Engle RE, Govindarajan S, Gerin JL, Purcell RH. Immunogenicity and protective efficacy of a vaccine prepared from 53kDa truncated hepatitis E virus capsid protein expressed in insect cells. *Vaccine* 2002;**20**(5-6):853-857.

#### 2003:

656. Bartosch B, Bukh J, Meunier J-C, Granier C, Engle RE, Blackwelder WC, Emerson SU, Cosset F-L, Purcell RH. *In vitro* assay for neutralizing antibody to hepatitis C virus: Evidence for broadly conserved neutralization epitopes. *PNAS USA* 2003;**100**:14199-14204.
657. Emerson S, Purcell RH. Hepatitis E virus. *Reviews in Medical Virology* 2003;**13**:145-154.
658. Purcell RH, Nguyen H, Shapiro M, Engle RE, Govindarajan S, Blackwelder WC, Wong DC, Prieels J-P, Emerson SU. Pre-clinical immunogenicity and efficacy trial of a recombinant hepatitis E vaccine. *Vaccine* 2003;**21**:2607-2615.
659. Sakai A, St. Claire M, Faulk K, Govindarajan S, Emerson SU, Purcell RH, Bukh J. The p7 polypeptide of hepatitis C virus is critical for infectivity and contains functionally important genotype-specific sequences. *PNAS USA* 2003;**100**:11646-11651.
660. Schofield DJ, Emerson SU, Purcell RH. Four chimpanzee monoclonal antibodies that neutralize hepatitis A virus. *Drugs of the Future* 2003;**28**(2):137-142.
661. Schofield DJ, Purcell RH, Nguyen HT, Emerson SU. Monoclonal antibodies that neutralize HEV recognize an antigenic site at the carboxyterminus of an ORF2 protein vaccine. *Vaccine* 2003;**22**:257-267.
662. Tellier R, Bukh J, Emerson SU, Purcell RH. Long PCR amplification of large fragments of viral genomes. In: Bartlett JMS, Stirling D, eds. *Methods in Molecular Biology*. Totowa, NJ, Humana Press, Inc. 2003:167-172.
663. Tellier R, Bukh J, Emerson SU, Purcell RH. Long PCR methodology. In: Bartlett JMS, Stirling D, eds. *Methods in Molecular Biology*. Totowa, Humana Press, Inc. 2003:173-178.
664. Thimme R, Wieland S, Steiger C, Ghayeb J, Reimann KA, Purcell RH, Chisari FV. CD8+ T cells mediate viral clearance and disease pathogenesis during acute hepatitis B virus infection. *J Virol* 2003;**77**(1):68-76.
665. Yu C, Engle RE, Bryan JP, Emerson SU, Purcell RH. Detection of immunoglobulin M antibodies to hepatitis E virus by class capture enzyme immunoassay. *Clin Diagn Lab Immunol* 2003;**10**(4):579-586.

#### 2004:

666. Allander T, Emerson SU, Purcell RH, Bukh J. Cloning of unknown virus sequences by Dnase treatment and sequence-independent single primer amplification. In: Weissensteiner T, Griffin HG, Griffin A, eds. *PCR Technology, Current Innovations, 2<sup>nd</sup> Edition*. Boca Raton, CRC Press 2004:337-344.
667. Bukh J, Nam J-H, Faulk K, Emerson SU, Purcell RH. Development of an infectious cDNA clone permits *in vivo* analysis of genetic elements of GF virus B. In Jilbert AR, Grgacic EVL, Vickery K, Burrell CJ, Cossart YE, eds. *Proceedings of the 11<sup>th</sup> International Symposium on Viral Hepatitis & Liver Disease*. Australian Centre for Hepatitis Virology 2004:364-365.
668. Bukh J, Sakai A, Yanagi M, Fornis X, St. Claire M, Emerson SU, Purcell RH. In vivo analyses of genetic elements of hepatitis C following in vitro mutagenesis of an infectious clone (pCV-H77C). In Jilbert AR, Grgacic EVL, Vickery K, Burrell CJ, Cossart YE, eds. *Proceedings of the 11<sup>th</sup> International Symposium on Viral Hepatitis & Liver Disease*. Australian Centre for Hepatitis Virology 2004:385-386.
669. Bukh J, Thimme R, Satterfield WC, Meunier JG, Fornis X, Yanagi M, Emerson SU, Spangenberg HC, Chang KM, Chisari FV, Purcell RH. Persistence of HCV after homologous monoclonal re-challenge is associated with emergence of virus variants. In Jilbert AR, Grgacic EVL, Vickery K, Burrell CJ, Cossart YE, eds. *Proceedings of the 11<sup>th</sup> International Symposium on Viral Hepatitis & Liver Disease*. Australian Centre for Hepatitis Virology 2004:375-377.
670. Chisari FV, Thimme R, Guidotti LG, Wieland SF, Purcell R. Mediators of recovery from HBV infection. In Jilbert AR, Grgacic EVL, Vickery K, Burrell CJ, Cossart YE, eds. *Proceedings of the 11<sup>th</sup> International Symposium on Viral Hepatitis & Liver Disease*. Australian Centre for Hepatitis Virology 2004:
671. Coates S, Choo Q-L, Kuo G, Crawford K, Dong C, Wininger M, Weiner AJ, Berger K, Wong S, Ralston R, Morandi M, Pileri P, Rosa D, Muchmore E, Mahoney J, Brasky KM, Purcell RH, Abrignani S, Houghton M. Protection of chimpanzees against heterologous 1a viral challenge using a gpE1/gpE2 heterodimer vaccine. In Jilbert AR, Grgacic EVL, Vickery K, Burrell CJ, Cossart YE, eds. *Proceedings of the 11<sup>th</sup> International Symposium on Viral Hepatitis & Liver Disease*. (6-10 April, 2003, Sydney, Aust.) Australian Centre for Hepatitis Virology 2004:118-123.
672. Emerson SU, Nguyen N, Graff J, Stephany DA, Brockington A, Purcell RH. *In vitro* replication of hepatitis E virus (HEV) genomes and of an HEV replicon expressing green fluorescent protein. *J Virol* 2004;**78**(9):4838-4846.
673. Emerson SU, Purcell RH. Global health - Running like water - The omnipresence of hepatitis E. *N Engl J Med* 2004;**351**(23):2367-2368.
674. Emerson SU, Schofield D, Nguyen H, Zhou Y-H, Purcell RH. Identification of the neutralization site of HEV suggests that rat HEV represents a new serotype. In Jilbert AR, Grgacic EVL, Vickery K, Burrell CJ, Cossart YE, eds. *Proceedings of the 11<sup>th</sup> International Symposium on Viral Hepatitis & Liver Disease*. Australian Centre for Hepatitis Virology 2004:436-437.
675. Farci P, Balestrieri C, Pirri A, Serra G, Chessa L, Lai ME, Purcell RH. Clinical relevance of hepatitis C virus genetic variability. In: Jilbert AR, Grgacic EVL, Vickery K, Burrell CJ, Cossart YE. *Proceedings of 11<sup>th</sup> International Symposium on Viral Hepatitis & Liver Disease*, 2004:39-45.
676. Farci P, Roskams T, Chessa L, Peddis G, Mazzoleni AP, Scioscia R, Serra G, Lai ME, Loy M, Caruos L, Desmet V, Purcell RH, Balestrieri A. Long-term benefit of interferon

- $\alpha$  therapy of chronic hepatitis D: regression of advanced hepatic fibrosis. *Gastroenterology* 2004;**126**:1740-1749.
677. Goncalvez AP, Men R, Wernly C, Purcell RH, Lai C-J. Chimpanzee Fab fragments and a derived humanized IgG1 antibody that cross-neutralize dengue type 1 and type 2 viruses efficiently. *J Virol* 2004;**78**:12910-12918.
  678. Goncalvez AP, Purcell RH, Lai C-J. Epitope determinants of a chimpanzee Fab antibody that efficiently cross-neutralizes dengue type 1 and type 2 viruses map to inside and in close proximity to the fusion loop of the dengue type 2 virus envelope glycoprotein. *J Virol* 2004;**78**:12919-12928.
  679. Huang FF, Sun ZF, Emerson SU, Purcell RH, Shivaprasad HL, Pierson FW, Toth TE, Meng XJ. Determination and analysis of the complete genomic sequence of avian hepatitis E virus (avian HEV) and attempts to infect rhesus monkeys with avian HEV. *J Gen Virol* 2004;**85**:1609-1618.
  680. Koshy R, Le S-Y, Maizel J, Emerson SU, Purcell RH, Ehrenfeld E. Hepatitis C virus IRES elements: are two better than one? In Jilbert AR, Grgacic EVL, Vickery K, Burrell CJ, Cossart YE, eds. *Proceedings of the 11<sup>th</sup> International Symposium on Viral Hepatitis & Liver Disease*. Australian Centre for Hepatitis Virology 2004:359-360.
  681. Men R, Yamashiro T, Goncalvez AP, Wernly C, Schofield DJ, Emerson SU, Purcell RH, Lai C-J. Identification of chimpanzee Fab fragments by repertoire cloning and production of a full-length humanized immunoglobulin G1 antibody that is highly efficient for neutralization of dengue type 4 virus. *J Virol* 2004;**78**(9):4665-4674.
  682. Purcell RH. Hepatitis research in the 21<sup>st</sup> century. In Jilbert AR, Grgacic EVL, Vickery K, Burrell CJ, Cossart YE, eds. *Proceedings of the 11<sup>th</sup> International Symposium on Viral Hepatitis & Liver Disease*. Australian Centre for Hepatitis Virology 2004:9-12.
  683. Purcell RH, Nguyen H, Shapiro M, Engle RE, Govindarajan S, Blackwelder WC, Wong DC, Prieels J-P, Emerson SU. Krugman Award Presentation. Preclinical immunogenicity and efficacy trial of a recombinant hepatitis E vaccine. In Jilbert AR, Grgacic EVL, Vickery K, Burrell CJ, Cossart YE, eds. *Proceedings of the 11<sup>th</sup> International Symposium on Viral Hepatitis & Liver Disease*. Australian Centre for Hepatitis Virology 2004:433-435.
  684. Sakai A, Thimme R, Spanngenberg HC, Govindarajan S, Emerson SU, Purcell RH, Chisari FV, Bukh J. Rapid emergence of virus variants in acute HCV with vigorous host cellular immune responses and different outcome. In Jilbert AR, Grgacic EVL, Vickery K, Burrell CJ, Cossart YE, eds. *Proceedings of the 11<sup>th</sup> International Symposium on Viral Hepatitis & Liver Disease*. Australian Centre for Hepatitis Virology 2004:412-414.
  685. Thiel H-J, Collet MS, Gould EA, Heinz FX, Houghton M, Meyers G, Purcell RH, Rice CM. Flaviviridae. In Fauquet CM, Mayo MA, Maniloff J, Desselberg U, Ball LA, eds. *Virus Taxonomy, VIIIth Report of the ICTV*. London, Elsevier/Academic Press 2004:979-996.
  686. Wieland SF, Spangenberg HC, Thimme R, Purcell RH, Chisari FV. Expansion and contraction of the hepatitis B virus transcriptional template in infected chimpanzees. *PNAS USA* 2004;**101**(7):2129-2134.
  687. Wieland S, Thimme R, Purcell RH, Chisari FV. Genomic analysis of the host response to hepatitis B virus infection. *PNAS USA* 2004;**101**(17):6669-6674.
  688. Yu M-YW, Bartosch B, Zhang P, Guo Z-P, Renzi PM, Shen L-M, Granier C, Feinstone SM, Cosset F-L, Purcell RH. Neutralizing antibodies to hepatitis C virus (HCV) in

immune globulins derived from anti-HCV-positive plasma. *PNAS USA* 2004;**101**(20):7705-7710.

689. Zhou Y-H, Purcell RH, Emerson SU. An ELISA for putative neutralizing antibodies to hepatitis E virus detects antibodies to genotypes 1, 2, 3, and 4. *Vaccine* 2004;**22**(20):2578-2585.

**2005:**

690. Emerson SU, Arankalle VA, Purcell RH. Thermal stability of hepatitis E virus. *J Infect Dis* 2005;**192**:930-933.
691. Farci P, Purcell RH. Hepatitis C: Natural history and experimental models. Chapter 27. In: Thomas HC, Lemon S, Zuckerman A, eds., *Viral Hepatitis*. 3<sup>rd</sup> edition. Blackwell Publishing Ltd., Oxford, 2005:439-467.
692. Graff J, Nguyen H, Kasorndorkbua C, Halbur PG, St Claire M, Purcell RH, Emerson SU. *In vitro* and *in vivo* mutational analysis of the 3'-terminal regions of hepatitis E virus genomes and replicons. *J Virology* 2005;**79**(2):1017-1026.
693. Graff J, Nguyen H, Yu C, Elkins WR, St Claire MS, Purcell RH, Emerson, SU. The open reading frame 3 gene of hepatitis E virus contains a cis-reactive element and encodes a protein required for infection of macaques. *J Virology* 2005;**79**(11):6680-6689.
694. Meunier JC, Engle RE, Faulk K, Zhao M, Bartosch B, Alter H, Emerson SU, Cosset FL, Purcell RH, Bukh J. Evidence for cross-genotype neutralization of hepatitis C virus pseudo-particles and enhancement of infectivity by apolipoprotein C1. *PNAS USA* 2005;**102**(12):4560-4565.
695. Murray JM, Wieland SF, Purcell RH, Chisari FV. Dynamics of hepatitis B virus clearance in chimpanzees. *PNAS USA* 2005;**102**(49):17780-17785.
696. Purcell RH, Emerson SU Hepatitis E virus. Chapter 174. In: Mandell GL, Bennett JE, Dolin R, eds. *Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases*. 6<sup>th</sup> edition. Philadelphia, Elsevier 2005:2204-2217.
697. Purcell RH, Emerson SU. Hepatitis A: Natural history and experimental models. In: Thomas HC, Lemon S, Zuckerman A, eds, *Viral Hepatitis*. 3<sup>rd</sup> edition. Oxford, Blackwell Publishing Ltd. 2005:109-125.
698. Purcell RH, Emerson SU. Prevention. Chapter 42. In: Thomas HC, Lemon S, Zuckerman A, eds, *Viral Hepatitis*. 3<sup>rd</sup> edition. Oxford, Blackwell Publishing Ltd. 2005:635-648.
699. Schofield DJ, Bartosch B, Shimizu YK, Allander T, Alter HJ, Emerson SU, Cosset F-L, Purcell RH. Human monoclonal antibodies that react with the E2 glycoprotein of hepatitis C virus and possess neutralizing activity. *Hepatology* 2005;**42**:1055-1062.
700. Thimme R, Bukh J, Spangenberg, HC, Wieland SF, Blum HE, Purcell RH, Chisari FV. T-cell response to hepatitis B and C virus: lessons from the chimpanzee model. In: von Weizsacker F, Roggendorf M, eds. *Models of Viral Hepatitis*. Basel, Karger 2005;**25**:66-80.
701. Zhou YH, Purcell RH, Emerson SU. A truncated ORF2 protein contains the most immunogenic site on ORF2: antibody responses to non-vaccine sequences following challenge of vaccinated and non-vaccinated macaques with hepatitis E virus. *Vaccine* 2005;**23**(24):3157-3165.

**2006:**

702. Chen Z, Earl P, Americo J, Damon I, Smith SK, Zhou Y-H, Yu F, Sebrell A, Emerson A, Cohen G, Eisenberg RJ, Svitel J, Schuck P, Satterfield W, Moss B, Purcell RH.

- Chimpanzee/human mAbs to vaccinia virus B5 protein neutralize vaccinia and smallpox viruses and protect mice against vaccinia virus. *PNAS USA* 2006;**103**(6):1882-1887.
703. Payette PJ, Ma X, Weeratna RD, McCluskie MJ, Shapiro M, Engle RE, David HL, Purcell RH. Testing of CpG-optimized protein and DNA vaccines against the hepatitis B virus in chimpanzees for immunogenicity and protection from challenge. *Intervirology* 2006;**49**:144-151.
704. Stoszek SK, Abdel-Hamid M, Saleh DA, El Kafrawy S, Narooz S, Hawash Y, Shebl FM, El Daly M, Said A, Kassem E, Mikhail N, Engle RE, Sayed M, Sharaf S, Fix AD, Emerson SU, Purcell RH, Strickland GT. High prevalence of hepatitis E antibodies in pregnant Egyptian women. *Royal Society Trop Med & Hyg* 2006;**100**:95-101.
705. Stoszek SK, Engle RE, Abdel-Hamid M, Mikhail N, Abdel-Aziz F, Medhat A, Fix AD, Emerson SU, Purcell RH, Strickland GT. Hepatitis E antibody seroconversion without disease in highly endemic rural Egyptian communities. *Royal Soc Trop Med & Hyg* 2006;**100**:89-94.

## IN PRESS

1. Chen Z, Moayeri M, Zhou Y-H, Leppla S, Emerson S, Sebrell A, Yu F, Svitel J, Schuck P, St. Claire M, Purcell R. Efficient neutralization of anthrax toxin by chimpanzee monoclonal antibodies against protective antigen. In press, *J Infect Dis*.
2. Emerson SU, Clemente-Casares P, Moiduddin N, Arankalle VA, Torian U, Purcell RH. Putative neutralization epitopes and broad cross-genotype neutralization of *Hepatitis E virus* confirmed by a quantitative cell-culture assay. In press. *J Gen Virol*.
3. Meky FA, Stoszek AK, Abdel-Hamid M, Selim S, Abdel-Wahab S, Mikhal N, El Kafrawy S, El Daly M, Abdel-Aziz F, Sharaf S, Mohamed MK, Engle RE, Emerson SU, Purcell RH, Fix AD, Strickland GT. Active surveillance for viral hepatitis in rural villages in the Nile Delta. In press, *Clin Infect Dis*.
4. Takikawa S, Engle RE, Emerson SU, Purcell RH, St. Claire M, Bukh J. Functional analyses of GBV-B p13 protein: Development of a recombinant GBV-B hepatitis virus with a p7 protein. In press, PNAS.